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LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

Program Management Plan

Metro

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PROGRAM MANAGEMENT PLAN

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Approved By:

Phillip A. Washington, CEO
Los Angeles County Metropolitan Transportation Authority

10/19/2016
Date

Dear Metro Stakeholders,

After three years of collaboration with regional partners and hearing from voices across Los Angeles County, Metro proceeds to the November 8, 2016 ballot with a Plan that will ease traffic and improve transportation – the Los Angeles County Traffic Improvement Plan.

This document, Metro's Program Management Plan (PMP), outlines how Metro will manage and implement the capital improvement portion of this ambitious transportation infrastructure program if voters approve the Measure in November. The Program Management Plan is a department-by-department roadmap that lays out the necessary resources needed to implement the Plan. The Plan builds upon Operation Shovel Ready, a Metro Board of Directors approved effort to accelerate critical project delivery steps, such as environmental clearances and design work, in anticipation of securing project construction funds. Metro's vision is to begin implementing the Measure M Plan immediately. And, while the intent is to outline Metro's implementation plan in 10 year increments, the Program Management Plan is a dynamic document that can change as Metro works through Program implementation.

Metro is indeed ready to take on the task of implementing this massive, multi-billion dollar Program Management Plan and will continue to update the Metro Board of Directors and the public on its progress.

Finally, I give kudos to Metro staff for their work in preparing this implementation plan. This has truly been an agency wide effort.

Metro is ready to execute the Plan and the PMP.

Let Metro staff know if you have questions.

Phillip A. Washington

EXECUTIVE SUMMARY

The Los Angeles County Metropolitan Transportation Authority (Metro) has developed the Los Angeles County Traffic Improvement Plan (LACTIP) or "Measure M" as a way to address new transit and highway projects, enhanced bus and rail operations, and several other transportation improvements in Los Angeles County. Metro's Program Management Plan serves as a strategic framework for Measure M Capital Project Delivery and provides a roadmap on how Metro will manage and implement this ambitious transportation infrastructure program if voters approve the Measure in November. The Program Management Plan summarizes program scope, schedule and budget; provides organizational information for control systems, processes, responsibilities and authority; describes agency policies, procedures and interrelationships; establishes mechanisms for managing technical and financial risks and demonstrates stakeholder accountability and transparency.

Measure M is expected to generate an estimated $860 million a year in 2017 dollars. Based on the latest economic forecast by the Los Angeles Economic Development Corporation, the LACTIP would add 465,690 new jobs across the region, stimulate $79.3 billion in economic output in Southern California, and fund 40 major highway and transit projects in the first 40 years. The goals of Measure M include easing traffic congestion, improving freeway traffic flow; expanding rail and rapid transit systems and improving system connectivity; repaving local streets, repairing potholes, and synchronizing signals; making public transportation more accessible, convenient and affordable for seniors, students, and the disabled; earthquake retrofitting bridges and keeping the transit and highway system safe and in good working condition; embracing technology and innovation; creating jobs, reducing pollution and generating local economic benefits; providing accountability and transparency by protecting and monitoring the public's investment.

The overall program budget for the first 40 years focuses on Capital Project Delivery which includes $41.8 billion Transit Construction, $2.39 billion Metro State of Good Repair, and $20.33 billion Highway Construction. The Measure M Program Master Schedule outlines project delivery across the lifecycle including planning and environmental analysis, preliminary engineering and final design, contract procurement and real estate acquisition, construction management, testing and start-up as well as outlines opportunities for acceleration of projects. A Program Support Plan will be issued at a future date to address other elements of Measure M.

Strategic Initiatives

A series of strategic initiatives have been identified to address planned enhancements for Measure M Capital Project Delivery and how this transportation infrastructure program will be managed and implemented:

- **Staff Capacity Planning** - Capital project delivery of the infrastructure program in the Plan is highly dependent on providing sufficient staffing resources. Staffing needs for the Measure M projects were forecasted based on utilizing the right size for Metro, strategic consultant use, the ability to attract, train and retain core staff, growing through succession planning, streamlining /automating processes for efficiency, and partnering with community colleges to develop transportation in discipline curriculums.

- **Acquisition Process Innovation** - The construction industry differs from most other industries as contracts developed for individual projects, while containing a core set of standard requirements, are developed and adapted to suit the specific requirements of each project. This can be further complicated by the different types of contract delivery methods that have evolved over the years. Any efficiency that can be developed in either the procurement process or the procurement document can, when repeated over the life of a program of projects, save significant time and cost and improve the flow of procurements and implementation. Procurement process initiatives include reviewing potential Alternative Delivery Methods / PPP, facilitating private sector innovation, streamlining process and documentation, procurement strategic planning, project pre-planning, increasing competition, and increasing small business opportunities.

- **Strengthen the Project Budget Process** – With the large increase in both the number and value of projects being delivered under Measure M, it is essential that accurate Life of Project (LOP) budgets be developed for each project. Strengthening the project budget process includes expanding the use of Cost Estimating staff in the development of independent cost estimates and project budgets, working closely with the respective Departments during the early stages of project development, commencing risk assessments at the earliest practicable time in the project life, ensuring continuity of approach across the program, continuing Annual Program Evaluation process, establishing the LOP budget once projects have completed adequate engineering and design or bids are received for construction, and actively manage project scope to deliver projects on-time and within budget.

- **Technical Documents** – The Technical Documents initiative will entail the review of Metro's Design Criteria, Specifications, Standard and Directive Drawings, in conjunction with the innovation of Metro's procurement process and related documentation. This includes incorporating lessons learned, reviewing contract specification parameters (prescriptive vs performance), reducing submittals and approvals, promoting emerging technologies, and analyzing contract documents from a commercial/claims perspective.

- **Quality Management** – The Quality Management initiative will involve a thorough review and revision of Metro's Quality Management Program (QMP) and of the Quality Management Program Manual (QMPM) to incorporate Lessons Learned from Metro's projects and taking into account national Best Practices and experience from other transit agencies. The establishment of Quality Audit strategies, schedules and requirements, the capturing of quality records and audit data and tailored quality reporting will be automated, using State of the Art technology.

- **Third Party Utilities** – One area that has the most impact on the success of project delivery, and thus the cost and schedule of a project, is the third party interface, particularly utility relocations. Utilities are widely recognized as one of the top two causes of delay in project development and delivery. Third Party Utility initiatives being implemented include incorporating lessons learned, performing utility strategic planning, establishing Municipal/Utility Task Force, analyzing organizational structure/co-location, establishing bench contractors, expanding the pool of contractors and expediting lead-in activities or undertaking them earlier in the Project Life.

- **Teaming with External Jurisdictions** – The success of Stakeholder and Third Party Coordination is a major contributor to project delivery. While this section references good cooperation and coordination between the City of Los Angeles and Metro, close coordination with all interfacing governmental entities is important and this section applies equally to all such entities and cities. This strategic initiative involves establishing Executive Level single point of contact, performing joint strategic pre-planning, streamlining Master Cooperative Agreements, establishing a Joint Oversight Committee, establishing mutually acceptable design criteria, co-locating key staff, defining maintenance responsibilities, and streamlining the approval and permit process.

- **Teaming with Caltrans –** The Metro Highway Program is responsible for the programming and delivery of transportation improvements on the State Highway System and local arterials in Los Angeles County consistent with the Metro Long Range Transportation Plan (LRTP) and the projects/programs approved by the Metro Board under various sales tax measures. In this capacity, Metro works closely with the California Department of Transportation (Caltrans), the subregional Councils of Governments (COGs) and the cities in Los Angeles County to deliver regional, subregional, and local highway/roadway improvement projects. As local funding for project implementation increases, so does the need for greater coordination and communication between the parties. This strategic initiative involves initiating a Partnering Program, implementing a Lessons Learned Program, establishing a Management / Communications Plan, establishing a Strategic Implementation Plan, establishing Project Management Plans, developing an Interagency Agreement, promoting staff co-location and providing joint coordination with the Council of Governments.

Metro Department Functions

The Management Organization in the Program Management Plan describes Metro organizational structure and the responsibilities of staff that will be involved in the Capital Program. There are three management levels overseeing delivery of Metro Capital Program: the Board of Directors, who provide policy direction; the Chief Executive Officer and his direct reports, who provide executive direction; and the Projects Teams, who are responsible for implementation of the projects.

The Office of the CEO (OCEO) – The OCEO supports the CEO in carrying out his vision for the agency. The OCEO is the central point of contact for the Board of Directors, Board staff, and employees. Supporting the CEO requires understanding the vision, mission, and goals, maintaining frequent communication with the Board offices, working with staff to elevate issues, ensuring crossing departmental coordination and collaboration.

Finance & Budget - Metro's Finance & Budget participates extensively in Metro's fiscal and project delivery cycles. Metro's Finance Business Unit is charged with maintaining long term fiscal stability in an aggressive construction environment. In support of Metro's project delivery efforts, the Finance & Budget Business Unit is comprised of five sub-units as follows: Treasury, Office of Management and Budget (OMB), Accounting, Local Programming and Transit Access Pass (TAP).

Countywide Planning and Development – The Countywide Planning and Development is responsible for long range planning, regional transit planning and systems analysis and research within Los Angeles County. This department develops and implements complex countywide plans and programs such as Long Range and Short Range Transportation Plans and manages the Biennial Call for Projects competitive grant process. Major efforts include the implementation of the

Congestion Management Program (CMP) which enables cities to receive annual gas tax apportionments for meeting statutory CMP requirements and coordination with South Coast Air Quality Management District to ensure that the $297.6 billion of LRTP projects are in compliance with the federal Clean Air Act. This unit also provides technical planning analysis including travel demand modeling, geographic information system analysis, and census data analysis. These tools are essential to the development of corridor and countywide studies, and are required for the approval of federal transportation funds.

The Strategic Financial Planning group is responsible for integrating diverse federal, state, local, and private financial resources to accomplish the Long Range Transportation Plan, as periodically updated by the Metro Board of Directors. In doing so, this unit seeks to preserve local financial resources and funding flexibility to enable the delivery of planned services and capital projects, including existing operating commitments, state of good repair needs and improvements to the regional transportation system in Los Angeles County. Grants management and administration activities include grant development, project and program monitoring, reporting and financial oversight. Working with federal, state and regional/local funding policy makers and partners, this group seeks to optimize policies and maximize funding for Los Angeles County transportation programs and projects by obtaining and overseeing formula and discretionary federal, state and regional/local grant funds and federal loans for the agency and its sub-grantees.

The Transit planning group provides integrated support through all phases of a project's life, from early project planning through construction. While Planning's role evolves through the life of the project, their involvement is essential to each project's success. As the lead through the Planning and Environmental phases, the Planning group acquires a trove of project knowledge and builds stakeholder relationships that help mitigate areas of development risk during the design/construction phases. Looking forward, more effective coordination between Planning and Program Management and early community engagement will be critical to the departments' collective ability to deliver on the Metro capital program. Property acquisition and management of real property is the responsibility of the Real Estate section in Transit Planning.

Program Management – The Program Management Department is focused on the successful delivery of capital projects, including transit, highway, and regional rail projects. Safety, quality, and on-time/on-budget delivery while mitigating stakeholders issues are major goals. The department comprises of the following functions: Program Control; Engineering; Transit, Highway and Regional Rail and Facility Capital Project Delivery; Environmental Compliance & Sustainability.

Program Control assists in managing scope, project status, budgets, schedules, estimates, document control, change control, risk management and reporting. Program Control serves as the central point of coordination across departments to ensure projects are delivered within cost, schedule, and risk expectations. Program controls support is also provided for activities including program reporting, enterprise standards and tool development, project management training and process improvements. Staff support is provided for the environmental planning and preliminary engineering, final design engineering and construction, and maintenance and operations phases.

Engineering is composed of engineering staff across all Engineering and Architectural fields needed for the design and construction of Metro rail systems including tunnel engineering, structural

engineering, geotechnical engineering, civil and track work engineering, architectural, mechanical, electrical and plumbing (MEP) engineering and systems engineering. In addition, the Engineering group supports Metro's projects for their coordination with all Third Parties including the City of Los Angeles departments, mainly Bureau of Engineering (BOE) and Department of Transportation (DOT), but also Bureau of Sanitation (BOS), Bureau of Street Services (BSS), Bureau of Street Lighting (BSL) and Contract Administration (CONAD). Engineering also houses the Quality Assurance/Quality Control (QA/ QC) Department, which provides Quality Management to all Metro projects.

The Transit unit of the Program Management Department manages Transit projects from the Project Development Phase, through Construction and Project Handover. Metro's Transit projects include a broad range of infrastructure and technology, from vertical structures required to support operations and security activities to horizontal infrastructure such as Light Rail Transit and Subways.

The Metro Highway Program is responsible for the cost effective and timely delivery of safe and sustainable transportation improvements on streets and freeways across Los Angeles County. In line with the Metro Long Range Transportation Plan, the Highway Program advances the planning, environmental clearance, design and construction of major capital projects such as carpool lanes, mainline widening, freeway connectors, auxiliary lanes, freeway ramp improvements, grade crossings, and sound walls. In addition, the Highway Program works with regional and local stakeholders to implement lower-cost operational improvements such as ramp metering, traffic signal synchronization, and corridor management solutions to alleviate congestion and improve travel time reliability on freeways and local arterials.

The Regional Rail unit of the Program Management Department oversees the coordination with key stakeholders including Southern California Regional Rail Authority (SCRRA), Los Angeles – San Diego – San Luis Obispo Rail Corridor (LOSSAN), California High Speed Rail Authority (CHSRA), local municipalities, as well as the communication with Metro Board of Directors and their staff. Working in coordination with SCRRA, the Regional Rail unit also manages select capital projects for major Regional Rail and other Metro capital projects and provides overall leadership of Regional Rail staff to ensure that all Regional Rail capital projects and planning efforts are completed on time and within budget.

The Facilities Capital Projects Unit is responsible for all vertical construction and capital improvements for Metro's operational bus and rail facilities. The Unit supports other capital projects with construction and design support for projects not directly managed by the Facilities Capital Projects. The Unit is also responsible for management and coordination of all joint development projects at Metro stations, for engineering support and design work for Facilities Maintenance and General Services at facilities and headquarters, and technical support for sustainability projects. The Unit assists in other major rail programs and planning with management of their rail facility projects, such as the yards, new stations, etc.

The Environmental Compliance and Sustainability Unit provides general support services and project management to Metro's Planning, Construction, Operations, and Vendor/Contract Management Business units. The Unit is comprised of three functions: Environmental Services (including compliance, remediation, and liabilities reduction); Sustainability Services (including Energy Management, Climate Change Strategies Management, Policy Development and Implementation, Environmental Management System, and Carbon Credits Administration); and Project Management

of Sustainability Related Projects/Infrastructure. This section shares responsibilities with the Planning Department on the environmental clearance of capital projects. The Section also currently provides ad hoc oversight for the development and implementation of sustainability strategies in all projects absent an overall agency-wide coordinator for the implementation of sustainability practices and strategies in all capital projects,

Vendor / Contract Management – The Vendor/Contract Management Department (V/CM) has the responsibility to procure goods and services for Metro at a fair and reasonable price while exercising good business practices and the post award administration for contract compliance. All construction contracts (Design-Bid-Build (DBB), Design-Build (DB), Design-Build-Operate-Maintain (DBOM), Public-Private Partnership (P3), etc.) that exceed $2,500,000 shall be subject to Metro's Project Labor Agreement and Construction Career Policy and Local Hire Initiative. Metro's Vendor Portal (Metro/Business.net) links contractors, vendors, small businesses (DBE/SBE/DVBE), medium size businesses, and suppliers to all necessary information for contracting opportunities, how to do business with Metro, and requirements for all solicitations.

Risk, Safety, Emergency Management, & Asset Management – The Risk, Safety, Emergency Management & Asset Management Department protects the assets of the public by identifying, evaluating and responding to the risk exposures of Metro. The Risk section assess individual project risk and potential for damages across a wide variety of risk sources. Insurance provides an acceptable method of risk transference that ensures the adequate capital is required in the event of claims. Insurance also helps ensure that all of the various risk exposures are addressed by contractors. The Corporate Safety section provides leadership and dedicates its resources to promote the philosophy of continuous safety improvement (Safety's First!) for the benefit of Metro's employees, customers, community, and business partners.

System Security & Law Enforcement – The Systems Security and Law Enforcement Department is responsible to develop, distribute, implement, and administer comprehensive security and law enforcement procedures for all Metro operations.

Communications –The Metro Communications Department will develop a Strategic Communications Plan to establish and maintain a high level of communication and outreach to various stakeholders throughout the implementation of the Measure M program. The public outreach, engagement and communication functions are essential parts of keeping communities informed and engaged throughout the Measure M implementation process.

Employee / Labor Relations – Metro has organized services that recruit, develop and support the workforce within the Department of Employee and Labor Relations. The Department is organized with three Units; General Services, Labor Relations and Talent Management. These services are designed to support the core business of Metro. The General Services division manages all printing services, travel coordination and the maintenance of the Gateway Headquarters facilities. The Labor Relations division conducts all of Metro's negotiations leading to Collective Bargaining Agreements with the Union partners. The Talent Management division is responsible for talent acquisition and talent development. Team members manage recruitment and selection, including testing and background checking for over 2500 hires each year.

Congestion Reduction Department – The Congestion Reduction Department directs and manages the development of congestion reduction operating plans and implementation schedules, including revenue projections, environmental effects, mobility impacts on legislative requirements and technical feasibility. The Congestion Reduction department manages the maintenance of the tolling

infrastructure on the I-10 and I-110 Express Lanes. This includes the toll gantries, signage, in pavement sensors, cameras, enforcement beacons, and dynamic message signs. Roadway related items such as pavement maintenance and striping, median barriers, and graffiti removal are managed by Caltrans in coordination with ExpressLanes staff.

Office of Extraordinary Innovation – The Office of Extraordinary Innovation (OEI) provides support to the Program Management Department in all matters relating to innovation, unsolicited proposals, and public-private partnerships, such as procurement support, project delivery support, research to support program delivery, evaluation of unsolicited proposals, and analysis supporting the incorporation of new technologies on projects. Support to the Program Management Department may include such things as assistance in contract negotiations, the establishment of contract performance measures, consultant advisory services, and other assistance throughout the project delivery process, as requested by the Program Management Department or Metro's Senior Leadership Team.

Civil Rights – The Civil Rights Department ensures that Metro meets or exceeds Federal, State, and Local Civil Rights requirements by promoting universal equity for customers and employees. Civil Rights Program Compliance will evaluate services, programs, and facilities; educate employees and customers; monitor and advise on Civil Rights compliance; conduct investigations and make recommendations on corrective actions; and eliminate barriers in employment opportunities and ensure equal access and participation in the Metro transportation system.

Management Audit Services - Metro's Management Audit Services (MAS) Department is responsible for ensuring the integrity and efficiency of Metro policies and practices, the protection of assets and revenues, compliance with law, and adequacy of internal controls. MAS performs and/or manages the following types of engagements: performance audits (efficiency and effectiveness of operations, projects, or programs, suitability of the design and effectiveness of internal controls, reliability of operational and financial information), financial and compliance audits (grant agreements, Memorandum of Understanding, audits required by Proposition A, and Proposition C, Measure R, etc.), and contract audits (pre-award, incurred cost, close out, and contract change orders).

Information Technology (IT) Services – ITS enables the achievement of Metro's business goals and objectives through the use of innovation and technology. Key functions include Information Security, IT Operation and Service Delivery, System Architecture & Technology, Business Applications, IT Project Management Office, Corporate IT, delivering services & facilities on transportation projects, Digital Strategy & Innovation, and Research & Records Information.

Operations and Maintenance – Metro's Operations and Maintenance Department ensures the safe and reliable operation of regional bus and rail transportation infrastructure and equipment. Their focus is to continually improve the performance of Metro's assets and to conduct Metro's efforts in an efficient and professional manner. This mission is met by keeping all facilities, equipment, structures and utilities in good working order and at maximum efficiency. The Operations and Maintenance Department works to advance preventative, predictive and responsive management of resources and to provide safe and comfortable environments for passengers and employees. Metro Operations works with Planning and Program Management to establish criteria, planning, design and construction of projects.

Metro is prepared and is ready to implement the Program Management Plan, continue extensive community outreach, develop a Program Support Plan, and continue planning and delivering one of the largest capital improvement programs in the nation.

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1 INTRODUCTION

1.1 LOS ANGELES COUNTY TRAFFIC IMPROVEMENT PLAN PROGRAM MANAGEMENT PLAN

The Los Angeles County Metropolitan Transportation Authority (Metro), in partnership with stakeholders across Los Angeles County, is positioning the County to address current and future transportation needs. The County has more critical transportation needs than there are funds to meet them, and the region is expected to grow by another 2.3 million people in the next 40 years. Therefore, Metro has developed the Measure M Plan as a way to fund new transit and highway projects, enhanced bus and rail operations, and a host of other transportation improvements.

This Program Management Plan is a roadmap for capital projects implementation of the transportation plan – also known as Measure M on the November 2016 general election ballot. The Program Management Plan identifies requirements for capital project delivery for the major Transit and Highway projects as shown on Figure 1, The Los Angeles County Traffic Improvement Plan. The Program Management Plan outlines Metro's program structure, management control systems, and processes that guide the full range of activities required to implement the capital projects in the Measure M Plan. The Measure M's Program Management Plan is developed to:

- Summarize the capital improvements in the Plan, including the scope, schedule and capital budget.
- Describe reporting relations.
- Establish goals and objectives that form the basis of the Plan.
- Provide information about the organization, control systems, processes, roles and responsibilities, and lines of authority within Metro's capital improvement Program.
- Cite definitive and authoritative references, including specific policies and procedures.
- Describe inter-relationships between the Measure M practices and agency-wide policies and procedures.
- Establish consistent management practices.
- Establish mechanisms for managing technical and financial risks.
- Demonstrate to stakeholders that the plan is structured in accordance with the regional planning process and federal requirements.

The Measure M's Program Management Plan governs the conduct of all capital improvement participants, including Metro staff, consultants and contractors. The provisions of this plan apply throughout the Measure M Program, including the following capital improvement phases:

- Planning and environmental analyses
- Preliminary engineering and final design
- Contract procurement and administration

- Construction management and design support during construction
- Testing and start-up
- Project Close Out

In addition, there are units devoted to the Measure M Plan's organization and staffing, program implementation, Disadvantaged Business Enterprise/Small Business Enterprise (DBE/SBE) program, transit-oriented communities, civil and systems work elements, Quality Assurance/Quality Control (QA/QC) program, safety and security, risk management and insurance and public engagement.

1.1.1 Relationship to Project Management Plans

The Measure M Program Management Plan provides an overview of the Metro management strategies and systems used to implement an efficient and effective transportation program. The Program Management Plan serves as the overarching approach to program management and guides project-specific Project Management Plans to provide additional details that are unique to each major capital project. While the Program Management Plan establishes the overall structure for program implementation, the individual projects will set forth specific requirements relative to each project's unique characteristics in their respective Project Management Plans. Should a conflict exist between the Program Management Plan and a Project Management Plan, the requirements of the specific Project Management Plan shall govern.

1.1.2 Maintenance and Updating

The Measure M Program Management Plan is a living document and is updated as necessary to address any changes in the Plan organizational structure, management controls, internal or external relationships, system schedule, or similar. A project-specific Project Management Plan is developed and/or updated prior to the start of each phase of a Measure M capital project, regardless of procurement type. A project's initial Project Management Plan is prepared prior to the start of Preliminary Engineering. Project Management Plan updates are then required prior to the start of Final Design and Construction. In addition, it should be updated annually as necessary throughout the project's development.

Changes to the Measure M Program Management Plan will be initiated and approved by the Chief Program Management Officer and the Chief Planning Officer with final approval by the Chief Executive Officer. Changes to Project Management Plans must be approved by the respective Project Directors/Managers.

1.1.3 Distribution, Revisions and Updates

The Measure M Program Management Plan is prepared and issued under the authority of Metro's Chief Program Management Officer and will be revised and updated as the Plan evolves. The Measure M Program Management Plan is distributed to program participants as a controlled document and is subject to formal configuration control and administration. Modifications are made only in accordance with the Plan's configuration management and change control procedures. Subsequent revisions are formally issued as these modifications are approved and incorporated. All holders of controlled copies automatically receive updates. The Plan's Configuration Management Manager is responsible for the maintenance and distribution of the Measure M Program Management Plan.

1.2 MEASURE M DESCRIPTION

The Long Range Transportation Plan (LRTP) is Metro's roadmap to improve mobility, provide more transportation options, stimulate the Los Angeles County economy, and create jobs. The vision of this Plan is to enhance the County's regional transportation system by investing in capital improvements in Metro's bus system and rail systems, and Los Angeles County's highway, streets, and roads such as new carpool lanes and projects that will ease freeway bottlenecks for both auto and truck traffic. Additionally, the overall Plan invests in other programs including transit and paratransit operations, highway and transit system maintenance, local street improvements, bicycle and pedestrian connections, and keeps fares affordable for seniors, students, and the disabled.

Metro has made significant progress through the revenues generated from Proposition A, Proposition C and Measure R, and other local, state and federal funds. However, there is much more to do. The regions unmet critical transportation needs outpace the money available to keep up with demands: Measure M Plan is Metro's proposed response to meeting these needs.

On November 8, 2016, the voters of Los Angeles County will consider a sales tax ballot measure called Measure M and titled the Los Angeles County Traffic Improvement Plan – Figure 1. The plan was crafted through a collaborative process with regional stakeholders and with input from the public.

Measure M establishes a new half-cent sales tax in 2017, and replaces the existing Measure R half-cent sales tax after it was set to expire in 2039. The two will then combine for a one-cent tax. Measure M is an ongoing, sustained revenue stream that will fund transportation improvements until voters decide to repeal it through either a citizen initiative or a Metro Board-sponsored ballot measure.

The new half-cent sales tax is expected to generate an estimated $860 million a year in 2017 dollars.

The Measure M goals as outlined in the Measure M Ordinance include:

- **Improve freeway traffic flow;** reduce bottlenecks and ease traffic congestion.
- **Expand rail and rapid transit system;** accelerate rail construction and build new rail lines; enhance local, regional and express bus service; and improve system connectivity.
- **Repave local streets, repair potholes, synchronize signals;** improve neighborhood streets and intersections, and enhance bike and pedestrian connections.
- **Make public transportation more accessible, convenient and affordable** for seniors, students, and the disabled and provide better mobility options for the aging population.
- **Keep the transit and highway system safe;** earthquake-retrofit bridges, enhance freeway and transit system safety, and keep the transportation system in good working condition.
- **Embrace technology and innovation;** incorporate modern technology, new advancements and emerging innovations into the local transportation system.
- **Create job, reduce pollution, and generate local economic benefits**; increase personal quality time and overall quality of life.

- **Provide accountability and transparency;** protect and monitor the public's investment through independent audits and oversight.

Figure 1: The Los Angeles County Traffic Improvement Plan

Highway/Street Projects	
3	High Desert Multi-Purpose Corridor Project (Right-of-Way)
4	I-5 N Capacity Enhancements (SR-14 to Lake Hughes Rd)
12	SR-71 Gap: I-10 to Rio Rancho Rd
18	SR-57/SR-60 Interchange Improvements
21	I-105 ExpressLane: I-405 to I-605
15 16	Sepulveda Pass Corridor (Busway)
20	I-710 South Corridor Project Phase 1
33	I-605/I-10 Interchange
39	I-5 Corridor Improvements: I-605 to I-710
37	I-405 South Bay Curve Improvements
28	I-710 South Corridor Project Phase 2
26	I-10 ExpressLanes Extension to I-405/I-110 Interchange
34	SR-60/I-605 Interchange HOV Direct Connectors
32	I-405/I-110 Interchange HOV Connect Ramps & Interchange Improvements
45	High Desert Multi-Purpose Corridor Project (Construction)
31	I-605 Corridor "Hot Spot" Interchange Improvements

Not shown on map: Las Virgenes/Malibu Transportation Improvements, and North County Transportation Improvements

Transit Projects	
1	Airport Metro Connector/Green Line Extension
9	East San Fernando Valley Transit Corridor
7 8	BRT Connector Orange/Red Line to Gold Line
5	Gold Line Foothill Extension Phase 2B
2	Purple Line Extension Transit Project Section 3
10	West Santa Ana Transit Corridor Segment 1
6	Orange Line BRT Improvements (Locations TBD)
24 25	Gold Line Eastside Extension Phase 2 (one alignment)
19	Green Line Extension to Crenshaw Bl in Torrance
17	Vermont Transit Corridor
22 23	Sepulveda Pass Corridor (Rail)
24	West Santa Ana Transit Corridor Segment 2
30 31	Crenshaw Line Northern Extension
41	Orange Line Conversion to Light Rail
35	Lincoln Bl BRT
38	Green Line to Norwalk Metrolink Station
43	Sepulveda Pass Corridor Westwood to Airport Metro Connector
44	Gold Line Eastside Extension Phase 2 (second alignment)

Not shown on map: Crenshaw/LAX Track Enhancement Project, Complete LA River Bike Path and LA River Waterway, System Bike Path, City of San Fernando Bike Master Plan, Historic Downtown Streetcar, North San Fernando Valley BRT Improvements, Arroyo Verdugo Transportation Improvements, Regional Rail and Metrolink Improvements, and South Bay Transportation Improvements

Metro

1.3 LEGAL AUTHORITY

Metro was established by the State of California to plan, fund, construct, and operate transit and transportation projects in Los Angeles County. Further, Metro is the designated Regional Transportation Planning Agency (RTPA) for Los Angeles County with authority to program funds, to itself and other agencies, regional transportation funds in Los Angeles County.

Caltrans districts assist the regional agencies, where requested to do so, in developing regional plans. Caltrans is the owner and operator for improvements proposed on the State Highway System, and as such oversees the state and federal processes and approvals applicable for these projects, regardless of funding source or project sponsor.

Metro was authorized pursuant to Senate Bill 767 (de Leon) to place a sales tax measure on the ballot for voter consideration. The legislation requires, among other things, an Expenditure Plan that lists the transportation projects and programs to be funded from the sales tax revenue. Senate Bill 767 authorizes Metro to determine the duration of the tax, subject to voter approval. The bill requires Metro to conduct a transparent process in determining the most recent costs estimates for each project and program identified in the Expenditure Plan. The Metro Board of Directors approved a sales tax ordinance in June 2016. The sales tax ordinance shall become effective upon approval by minimum two-thirds of the voters voting on the measure.

1.4 THE PLAN'S BUDGET

The overall Plan's budget during the first 40 years for Measure M is shown in Table 1. This table also defines the percentage allocation to each component of the plan. This document is focused on Capital Project Delivery as highlighted below. A separate Program Support Plan, including Metro Board of Directors adopted guidelines will be issued to cover the other elements of Measure M Plan and other budget elements at a future date.

Table 1: Los Angeles County Traffic Improvement Plan – Outline of Expenditure Categories

Outline of Expenditure Categories
Fiscal Year (FY) 2018 - 2057, Escalated Dollars
(millions)

Subfund	Program	% of Sales Tax (net of Admin)	First Year Amount (FY 2018)	FY 2018 - FY 2032 (15 Years)	FY 2033 - FY 2047 (15 Years)	FY 2048 - FY 2057 (10 Years)	FY 2018 - FY 2057 (40 Years)
Transit Operating & Maintenance	Metro Rail Operations [1]	5%	$ 42	$ 850	$ 2,320	$ 2,810	$ 5,980
	Transit Operations [2] (Metro & Municipal Providers)	20%	$ 169	$ 3,400	$ 9,280	$ 11,240	$ 23,920
	ADA Paratransit for the Disabled; Metro Discounts for Seniors and Students	2%	$ 17	$ 340	$ 930	$ 1,120	$ 2,390
Transit, First/Last Mile (Capital)	Transit Construction (Includes System Connectivity Projects - Airports, Union Station, and Countywide BRT)	35%	$ 296	$ 5,960	$ 16,230	$ 19,670	$ 41,860
	Metro State of Good Repair [5]	2%	$ 17	$ 340	$ 930	$ 1,120	$ 2,390
Highway, Active Transportation, Complete Streets (Capital)	Highway Construction (includes System Connectivity Projects - Ports, Highway Congestion Programs, Goods Movement)	17%	$ 144	$ 2,890	$ 7,880	$ 9,560	$ 20,330
	Metro Active Transportation Program (Bicycle, Pedestrian, Complete Streets)	2%	$ 17	$ 340	$ 930	$ 1,120	$ 2,390
Local Return / Regional Rail	Local Return - Base [3] (Local Projects and Transit Services)	16%	$ 136	$ 2,720	$ 7,420	$ 8,990	$ 19,130
	Local Return / Regional Rail (Beginning FY 2040) [4]				*3% / 1%* → *$ 690*	*$ 2,240*	*$ 2,930*
	Regional Rail	1%	$ 8	$ 170	$ 460	$ 560	$ 1,200
	TOTAL PROGRAMS		**$ 847**	**$ 17,010**	**$ 46,380**	**$ 56,190**	**$ 119,590**
Administration /Local Return	0.5% for Administration	0.5%	$ 4	$ 85	$ 230	$ 280	$ 600
	1.0% Local Return [3]	1.0%	$ 8	$ 170	$ 460	$ 560	$ 1,200
	GRAND TOTAL		**$ 860**	**$ 17,265**	**$ 47,070**	**$ 57,030**	**$ 121,390**

1. Funds are eligible to be used for Metro Rail State of Good Repair.
2. Funds are eligible to be used for Metro State of Good Repair.
3. 1% Administration to supplement Local Return, **increasing the Local Return-Base to 17% of net revenues**.
4. To be funded by Highway/Transit Capital Subfunds in FY 2040 and beyond.
5. The Metro Board of Directors will prioritize the Wardlow Grade Separation project to receive new funding and/or grants and assign this project to be included in Metro's State of Good Repair program.

All totals are rounded; numbers presented in this document may not always add up to the totals provided.
Based on January 2016 revenue projections.

6/28/2016

1.5 PROGRAM SCHEDULE

A graphical depiction of the planned capital projects by phase (i.e. phases include environmental, planning, engineering, right of way, construction, testing and opening date) is shown in Figure 2. This chart can be used as an overall guide for staffing and resource management of the program.

1.6 STRATEGIC INITIATIVES

1.6.1 Program Staffing

Metro has been entrusted with the responsibility to plan and deliver one of the largest capital improvements in the nation because of the voter-approved Measure R. This responsibility for delivery of capital projects would more than double if the Measure M proceeds.

Preliminary Staffing Analysis

Based on the Measure M project listing, a preliminary analysis has been undertaken to estimate the necessary staffing resources to deliver such an unprecedented transportation infrastructure program. Capital project delivery of the infrastructure component of the Plan is highly dependent on providing sufficient and appropriate staffing resources.

Utilize recent project historical staffing levels for project staff modelling - For the purpose of strategic staffing planning for the capital projects, staff used over 10 years of project staffing resource data compared to the type of project, contract delivery method and the capital value of the project to estimate resource requirements for future capital project delivery.

The initial staffing assumptions used in the preliminary staffing plan consist of the following:

- Continue utilization of outside consultants to supplement Metro staff to meet the ongoing and fluctuating staffing demand.
- Maintain the current mix between Metro staff and consultants averaging 50 percent throughout the life of the project.
- The split between Metro staff and consultants may vary throughout the different project phases. In the early stages of the project (environmental process, design), the percentage of consultant's ranges up to 70 percent. In the later project phase during testing, pre-revenue start-up, and close out, the percentage of consultants decreased to an estimated 25 percent.
- Re-assign Metro staff to the new projects as existing projects are completed, while shedding consultant staff as the individual project resource needs wind down.

Metro Resources.

Metro "Direct" Project Delivery Resources - The staffing analysis focuses primarily on direct project staffing required for capital project delivery. The model includes direct Metro staff and consultant project staffing resources from departments including:

- Program Management - (Project Management, Program Control, Construction Management,

Major Capital Project Engineering, Engineering Management, Structural Engineering, Architectural, Systems Engineering, Facilities Engineering Quality Assurance/Compliance,

- Environmental Compliance/Sustainability, and Third Party Administration
- Countywide Planning & Development, including Real Estate Administration
- Vendor/Contract Management, including Diversity & Economic Opportunity
- Risk, Safety and Asset Management
- Communications, including Construction Relations
- Transportation and Rail Operations
- Management Audit
- Congestion Reduction
- Information & Technology Services

Metro "Non-Direct" Program Support. The non-direct program support staffing resources include the following departments/functions which are all integral to the successful management of the Program, such as Chief Executive Office, Office of Extraordinary Innovation, Finance and Budget , Long Range Planning & Coordination, Strategic Financial Planning & Programming, Regional Grants Management, Ethics, General Counsel, Office of Board Secretary, Talent Management, Government Relations, Office of Civil Rights, and Systems Security and Law Enforcement. The Program Support Plan (PSP) will address resources required for "non-direct" program support, which is projected to increase incrementally corresponding with the level of program activity.

Consultant Resources

Metro staff and consultants assigned to the project are co-located at the Integrated Project Management Office (IPMO). Metro staffing levels are generally influenced by various factors; a great majority of design engineering support and construction management oversight services are provided by external consultants. This allows Metro to maintain minimal employment levels that are supplemented by consultants as needed.

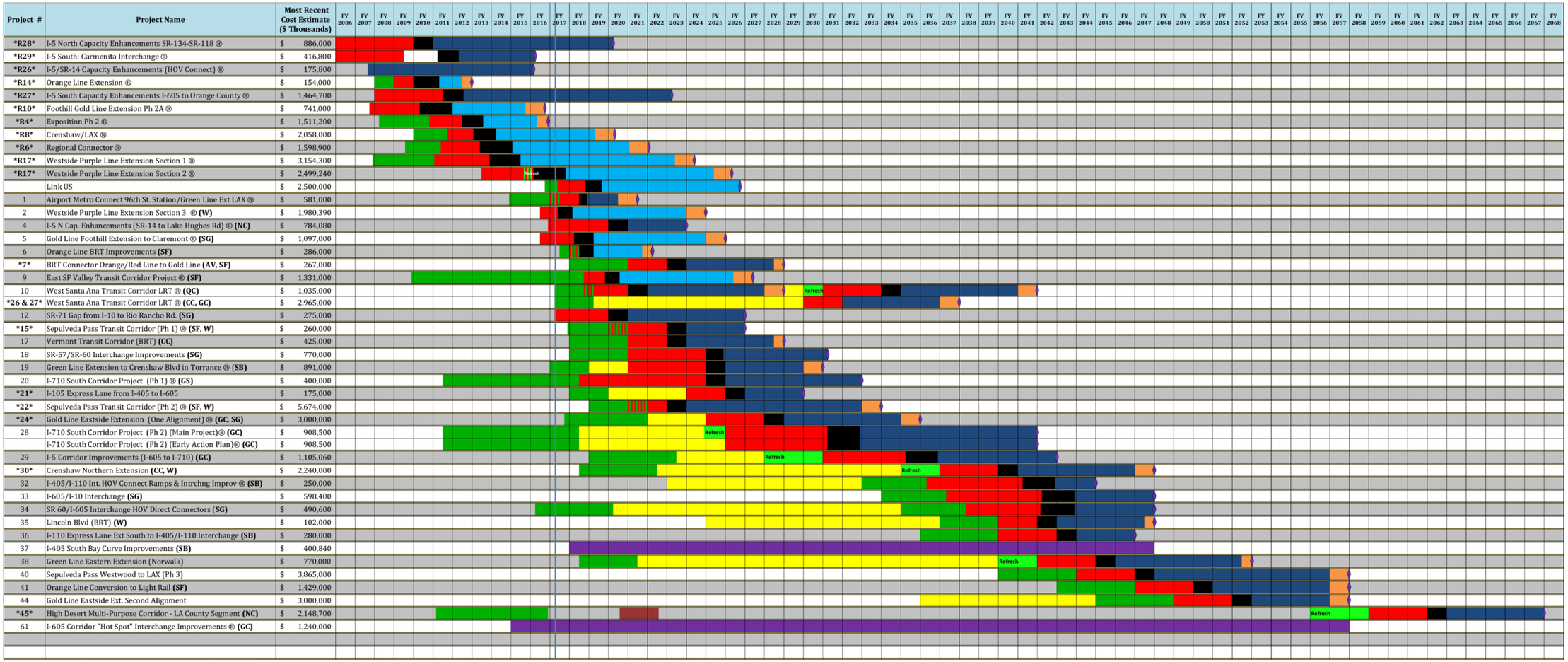
For such a major program, it would be challenging to hire all personnel as Metro employees. Specifically, consultants are used consistent with the following guidelines:

- Provide specialized expertise;
- Contract positions that are difficult for Metro to hire based on market conditions;
- Allow short-term, as-needed or part-time assignments;

- Smooth out peaks and valleys between projects and address peak fluctuations in the work including construction work that requires swing and night shifts

Figure 2: Measure M Metro Program Management Plan Master Schedule

Project #	Project Name	Most Recent Cost Estimate ($ Thousands)
R28	I-5 North Capacity Enhancements SR-134-SR-118 ®	$ 886,000
R29	I-5 South: Carmenita Interchange ®	$ 416,800
R26	I-5/SR-14 Capacity Enhancements (HOV Connect) ®	$ 175,800
R14	Orange Line Extension ®	$ 154,000
R27	I-5 South Capacity Enhancements I-605 to Orange County ®	$ 1,464,700
R10	Foothill Gold Line Extension Ph 2A ®	$ 741,000
R4	Exposition Ph 2 ®	$ 1,511,200
R8	Crenshaw/LAX ®	$ 2,058,000
R6	Regional Connector ®	$ 1,598,900
R17	Westside Purple Line Extension Section 1 ®	$ 3,154,300
R17	Westside Purple Line Extension Section 2 ®	$ 2,499,240
	Link US	$ 2,500,000
1	Airport Metro Connect 96th St. Station/Green Line Ext LAX ®	$ 581,000
2	Westside Purple Line Extension Section 3 ® **(W)**	$ 1,980,390
4	I-5 N Cap. Enhancements (SR-14 to Lake Hughes Rd) ® **(NC)**	$ 784,080
5	Gold Line Foothill Extension to Claremont ® **(SG)**	$ 1,097,000
6	Orange Line BRT Improvements **(SF)**	$ 286,000
7	BRT Connector Orange/Red Line to Gold Line **(AV, SF)**	$ 267,000
9	East SF Valley Transit Corridor Project ® **(SF)**	$ 1,331,000
10	West Santa Ana Transit Corridor LRT ® **(QC)**	$ 1,035,000
26 & 27	West Santa Ana Transit Corridor LRT ® **(CC, GC)**	$ 2,965,000
12	SR-71 Gap from I-10 to Rio Rancho Rd. **(SG)**	$ 275,000
15	Sepulveda Pass Transit Corridor (Ph 1) ® **(SF, W)**	$ 260,000
17	Vermont Transit Corridor (BRT) **(CC)**	$ 425,000
18	SR-57/SR-60 Interchange Improvements **(SG)**	$ 770,000
19	Green Line Extension to Crenshaw Blvd in Torrance ® **(SB)**	$ 891,000
20	I-710 South Corridor Project (Ph 1) ® **(GS)**	$ 400,000
21	I-105 Express Lane from I-405 to I-605	$ 175,000
22	Sepulveda Pass Transit Corridor (Ph 2) ® **(SF, W)**	$ 5,674,000
24	Gold Line Eastside Extension (One Alignment) ® **(GC, SG)**	$ 3,000,000
28	I-710 South Corridor Project (Ph 2) (Main Project)® **(GC)**	$ 908,500
	I-710 South Corridor Project (Ph 2) (Early Action Plan)® **(GC)**	$ 908,500
29	I-5 Corridor Improvements (I-605 to I-710) **(GC)**	$ 1,105,060
30	Crenshaw Northern Extension **(CC, W)**	$ 2,240,000
32	I-405/I-110 Int. HOV Connect Ramps & Intrchng Improv ® **(SB)**	$ 250,000
33	I-605/I-10 Interchange **(SG)**	$ 598,400
34	SR 60/I-605 Interchange HOV Direct Connectors **(SG)**	$ 490,600
35	Lincoln Blvd (BRT) **(W)**	$ 102,000
36	I-110 Express Lane Ext South to I-405/I-110 Interchange **(SB)**	$ 280,000
37	I-405 South Bay Curve Improvements **(SB)**	$ 400,840
38	Green Line Eastern Extension (Norwalk)	$ 770,000
40	Sepulveda Pass Westwood to LAX (Ph 3)	$ 3,865,000
41	Orange Line Conversion to Light Rail **(SF)**	$ 1,429,000
44	Gold Line Eastside Ext. Second Alignment	$ 3,000,000
45	High Desert Multi-Purpose Corridor - LA County Segment **(NC)**	$ 2,148,700
61	I-605 Corridor "Hot Spot" Interchange Improvements ® **(GC)**	$ 1,240,000



This document is a working draft meant for discussion purposes only and may contain preliminary conclusions not necessarily reflected in the final decision.

Footnotes	
Proj #	Included Projects
R#	Project # from previous "FY 2010 - 2039 Expenditure Plan"
7	8 - BRT Connector Orange/Red Line to Gold Line
15	16 - Sepulveda Pass Transit Corridor (Ph 1) ®
21	Restripe, PA&ED could start FY18. Construction anticipated 1 year.
22	23 - Sepulveda Pass Transit Corridor (Ph 2) ®
24	25 - Gold Line Eastside Extension (One Alignment) ®
26 & 27	Showing accelerated schedule with P3 delivery method
30	31 - Crenshaw Northern Extension
45	3 - High Desert Multi-Purpose Corridor (HDMC)®

Subregion
® - Indicates Measure R Related Projects
AV - Arroyo Verdugo
LVM - Las Virgenes Malibu
CC - Central City Area
SG - San Gabriel Valley
NC - North County
SB - South Bay
W - Westside
GC - Gateway Cities
SF - San Fernando Valley

Legend:	
Environmental	Environmental Refresher
Engineering	Right of Way
Bid	Program Implementation
D/B Construction	Possible Acceleration
D/B/B Construction	
Testing	
Opening Date	

Consultants are generally used as an extension of Metro staff, particularly in the case of Construction Management Support Services (CMSS)) but also as design support consultants for a variety of engineering, project management and other supporting disciplines that may be required during the course of each project. Some of the major roles assigned to consultants on specific projects include, but are not limited, to the following:

- Preliminary and final design;
- Environmental and planning studies;
- Innovation advisory services in the areas of finance and legal services to support the pursuit, evaluation, and implementation of any Public-Private-Partnership project;
- Construction management support services;
- Construction Safety;
- Quality Control and Quality Audits;
- Communications and outreach support associated with the marketing and public relations;
- Program control and program management support services;
- Consultants to perform specific assignments as they arise;
- Audit services for Measure M funds and projects; and
- Operational services to implement and deliver a variety of operations projects.

Generally, the project teams identify consulting requirements as early as possible, as part of the contract packaging consideration, building the procurement schedule and cost into the project schedule and budget. Consultant support services are procured consistent with Metro's acquisition policies and procedures for professional services. The consultants provide an extension of Metro staff and act under the direction of Metro. Consultants are used to supplement or support Metro staff in key functions to various Metro departments represented in the project team or supported by the project team – example departments are Program Management, Vendor/Contract Management, Communications, Enterprise Risk and Safety, and Countywide Planning Development.

In addition to the CMSS and design support consultants, which are generally procured on a level of effort and necessary skills basis, other consulting services retained are often project-specific or are for discrete tasks and such work is issued with defined scopes of work and deliverables.

As described elsewhere in the PMP, highways projects can be Metro-led or Caltrans-led. Depending upon the specific project, highways projects generally have a mix of Metro, Caltrans and Consultants, acting in a variety of roles and relationships, depending upon the specifics of each project. For instance, where Caltrans assumes the responsibility for completing the planning, environmental,

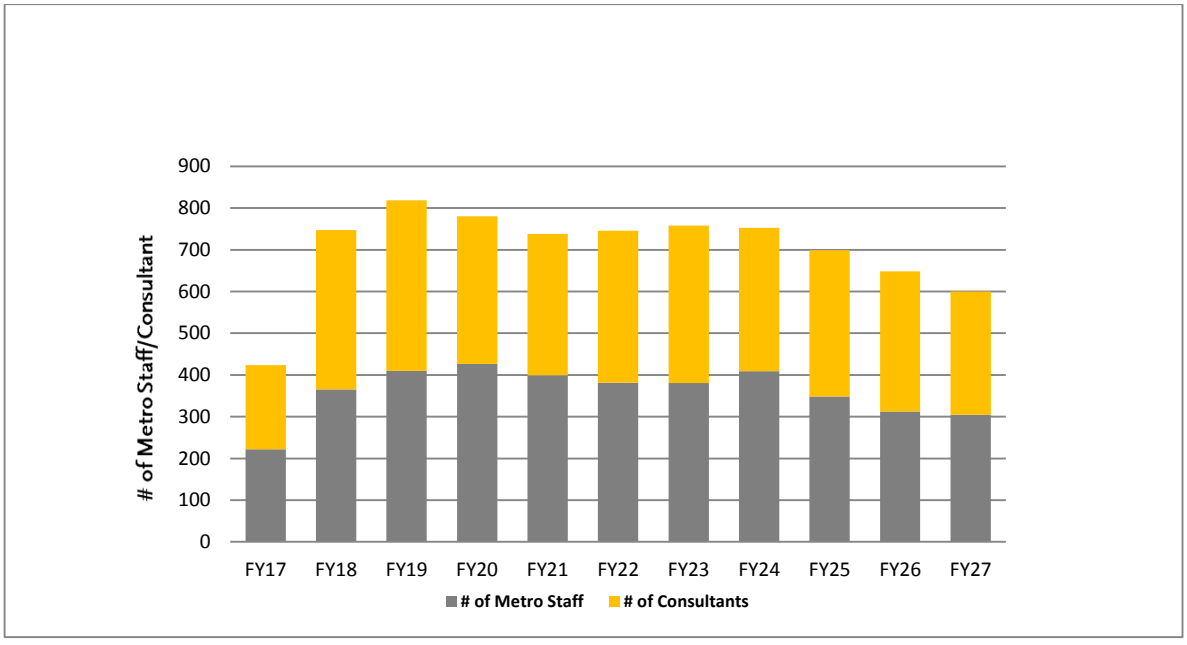
and/or design engineering phases of Metro-led highway improvement projects, the cost of their efforts is included in the overall project capital cost. Similarly, Metro also uses Consultants to leverage off the Metro core highway staff. These other consulting resources are not included in the staffing analysis discussed in the next section.

Preliminary Projections for 1st Decade

The staffing needs for the Measure M projects were forecasted based upon the methodology outlined in the preliminary staffing analysis, above. This high level analysis provides sufficient information for initial planning purposes. The actual staffing levels will depend on the exact timing of projects, project delivery methods, and the outcome of any planned streamlining initiatives. Continual refinement to the staffing levels as necessary to best meet the project needs will be an on-going effort.

The projections for the first 10 years are provided in the Figure 3 below. The average Metro staffing for the full decade period is 374, representing approximately 152 more staff or approximately 68% more than the present staffing complement. Based on this analysis, Metro staffing increases from 222 in FY17 through FY20, then gradually levels out to 305 by FY27. During the same period, consultant staffing ramps up quickly from 202 in FY17 until FY19, then levels out to 296 in FY27.

Figure 3: Preliminary Project Delivery Measure M Staffing First Decade (FY2017 - FY2027)



Staff Capacity Planning

Staff will refine the estimate of direct project delivery staffing resources and assess the program support staffing resources required to manage the Measure M upon approval. The generation of the high level staffing numbers from the preliminary staffing analysis will provide the basis for on-going refinement of resource requirements.

Right-Size the Metro Organization

Program Management, working in coordination with Vendor/Contract Management will closely review the Measure M project listing and will identify the likely project delivery method for each project and the number of contract packages per project phase and per project. Using this information, Project Management will coordinate with each department providing strategic, head office support, core project team members or support staff to identify the numbers and type of staff for each department. This information will be compared to existing staffing levels and skill sets to identify for each Metro department the number and timing of additional Metro staff required and the skill sets required. As part of this process, the initial assumption of a 50/50 split will be reviewed and amended as appropriate project by project, on a business case basis. The Departments will work with Labor/Employee Relations and Office of Management and Budget and ultimately Metro's Executive, using the 10-year staffing information to right size the Metro organization, accounting for the staffing requirements, Metro's strategic approach to staffing and succession planning and anticipating attrition levels.

Strategic Consultant Use - The preliminary staffing analysis adopted an assumption of an average 50/50 staffing split between Metro staff and Consultants. As part of the staff capacity planning process above, each staffing discipline will be reviewed on a granular basis to assess the appropriate staffing split for each staffing area. A number of criteria will be used in this assessment such as, how central to Metro's core mission is the discipline, does Metro need to have a core capability in the respective discipline, will the staffing requirements fluctuate over time, how certain is the need for ongoing staffing etc., how sensitive to the availability of funding are the specific staffing needs etc. These considerations will provide input into an overall business case assessment of the staffing strategy at a granular level.

Attract, Train and Retain Core Staff - Having identified Metro's long term staffing requirements/strategy and in conjunction with our succession planning, staff will review Metro's compensation package, working conditions and other means to attract and retain the brightest and the best. In anticipation of the retirement of the baby boomer generation, on the job training, mentoring and external training programs including partnering with community colleges to develop transportation discipline curriculums.

Grow Through Succession Planning - Metro has a strong core of long term staff who have intimate knowledge of Metro's processes and procedures through ongoing experience over a period of time in one or more Metro departments. Program Management, alone, may experience attrition levels of over 20% in the next 5 years due to staff retirements. As part of Metro's overall staffing strategy, succession planning will be factored into the long term planning.

Streamline/Automate Processes for Efficiency - Early implementation of new program policies and guidelines governing the program and its constituent projects is critical. As staff update our processes and procedures, we will seek means to simplify and streamline processes and seek opportunities to automate labor intensive activities. Program Management will work with Information Technology Services to seek means to automatically share data between various business components to reduce the need for manual transfer. Increased use of technology for head office and site related activities and the sharing of information and data across the organization would also provide staffing efficiencies.

Annual Updates (with a Five-Year Rolling Planning Horizon) – Annual Updates of the additional staffing refinements will occur as the program and the constituent projects are developed. The staffing plan will be reviewed at least annually and at significant project milestones or changes in regulatory requirements during the year to provide updates based on the new and more detailed descriptions of the projects. Generally, the updates will take place as part of the normal annual budget process. The staffing level will be evaluated and adjusted, if needed, when more project details including the selected project delivery method materialize. Actual staffing levels will be affected by a number of factors including exact project timing, delivery methods and organizational strategies. In addition, Metro will continue to evaluate opportunities for streamlining the delivery of projects without sacrificing quality.

1.6.2 Acquisition Process Innovation

The construction industry differs from most other industries as contracts developed for individual projects, while containing a core set of standard requirements, are developed and adapted to suit the specific requirements of each project. This can be further complicated by the different types of contract delivery methods that have evolved over the years. Any efficiencies that can be developed in the delivery method utilized, the procurement process, or the procurement documents, when repeated over the life of a program of projects, can save significant time, save contract and project costs and improve the flow of procurements and implementation of the project delivery.

Construction contract documents for all types of delivery methods are the written documents that define the roles, responsibilities, and work required under the construction contract. They are legally-binding on the parties (owner and contractor). The content of the documents is governed by national and/or state standards and include applicable laws, regulations, and agency experience incorporated over the years, and designation of risk between the parties.

Each solicitation includes a series of documents, including but not limited to:

- Bid or Proposal Instructions and Submittal Documents
- General Conditions
- Specifications
- Drawings and Specifications
- List of Real Estate Acquisitions
- Reports: investigations of physical conditions
    - Survey of Hazardous Materials
    - Geotechnical Baseline and/or Data Report

Innovation

Streamlining the Process and Documentation - Under this initiative a comprehensive review of the entire procurement processes from project planning through delivery, that may be required by law, regulation, policy, or practice and associated commercial and technical documents will be undertaken with a view to innovate; simplify, shorten and optimize the effectiveness of the processes while producing the best outcome for the agency. Similarly, review of contract documentation would seek to simplify and standardize the various documents, subject to project specific requirements, and to produce robust contract documents, which would provide the optimum project pricing, optimize the risk share and allow for private sector innovation. Metro will review existing legislation, additional delivery methods that might be required to provide additional value and any associated legislative changes that might be necessary. Means to obtain contractor innovation and private sector-value initiatives will be incorporated; Metro will seek means to increase the use of Alternative Technical Concepts as one example.

Strategic Planning - Program Management (PM) and Vendor/Contract Management (V/CM) already collaborate on planning upcoming procurements. Metro will develop a six-year plan to provide the basis of joint strategic preplanning with the City of Los Angeles and the other stakeholders. As part of this 6-year budget process, a long-term plan would be developed collaboratively to identify the number, type and timing of upcoming procurements. Moreover, Metro will investigate means to improve the choice of delivery method for specific projects and the overall contracting strategy for the project – “choosing the right tools for each job”. Additionally, Metro will review the optimum resource levels needed to deliver the six-year plan. Each year, this plan will be updated and refined through a collaborative process to provide input into the annual budgeting process.

Project Pre-Planning - During the Planning phase, work will commence on identifying the appropriate delivery method for each specific project. This early decision making potentially has significant bearing on downstream activities – it facilitates early identification of key steps in the project life, appropriate risk allocation, and overall planning for the project. During this phase any additional streamlining of the procurement and contract process can be investigated on an individual project basis.

Increasing Competition - Metro will investigate strategies to further increase the pool of consultants, contractors, subcontractors and small businesses to encourage additional participation in individual procurements that also result in new qualified firms receiving contracts at Metro. Market research including industry reviews, will be undertaken to identify and remove roadblocks. This effort must include strategies that change perceptions of the industry on doing business with Metro.

Increasing Small Business Opportunities - Allied with increasing competition, Metro will continue to build on its successful strategies to encourage and promote participation by disadvantaged, small and medium sized businesses as subcontractors and prime contractors. Further investigation will be undertaken to understand and remove or mitigate the impediments to such businesses involvement and to provide related solutions e.g. bonding, prompt payment, and meaningful utilization.

1.6.3 Strengthen the Project Budgeting Process

With the large increase in both the number and value of projects being delivered under Measure M, it is essential that accurate Life of Project (LOP) budgets be developed for each project. While Metro has a robust budget development process in place, there are a number of steps Program Management is and will be taking to ensure that projects are delivered within the LOP budget:

- Expanding the use of Cost Estimating staff in the development of independent cost estimates and project budgets, across the program (Transit, Highways and Regional Rail projects but also including capital projects initiated by other departments which are inherited by PM) and from the inception stage of each project.

- Irrespective of which Department initiates a project, work even more closely with the respective Departments during the early stages of project development to ensure that the cost estimates reflect the current scope, schedule and costs and that Risk is accounted for from the inception of the project.

- Commence risk assessments at the earliest practicable time in the project life and factor the effects into the project estimates at an early stage.

- Ensure continuity of approach across the program, including consultant teams, allowing for project specific variances where justified.

- The Annual Program Evaluation (APE) process has been implemented whereby project budgets are reviewed and updated on an annual basis.

- Establish the LOP budget once projects have completed adequate engineering and design or bids are received for construction.

- Actively control the scope of the projects to avoid scope creep, including betterments by adopting related processes and procedures, including a Change Control Board that considers the cost and schedule impacts of all proposed changes, in advance of a change being implemented. Change Control should be initiated at the earliest practicable time in the project life.

1.6.4 Technical Documents Update

This initiative will entail the review of Metro's Design Criteria, Specifications, Standard and Directive Drawings, in conjunction with the innovation of Metro's procurement process and related documentation.

Lessons Learned - Metro's technical documents were adapted and updated from documents previously utilized for prior Design/Bid/Build projects. Based on the initial Lessons Learned, the technical documents will need further review for use in alternative delivery method contracts (including Design/Build (D/B)) and general updating for use in D/B/B contracts. This is particularly true in the Fire Life Safety area, although a comprehensive Lessons Learned process needs to be completed to identify all of the areas of Metro's technical documentation needing review and update.

Prescriptive Requirements vs Performance Parameters - In the detail design phase of a Design/Bid/Build (D/B/B) project, various Metro departments (Risk, Safety and Asset Management, Program Management, Operations, Environmental Compliance and Sustainability, etc.) work with the designer, based on Metro's design criteria and relevant national standards, to develop project specific solutions to FLS issues, particularly emergency ventilation and the interfacing Systems and Operational scenarios. These detailed designs and provisions then become part of the prescriptive requirements of the construction contract. In an alternative delivery contract, final design is undertaken by the design builder, based upon the design criteria and national standards similar to D/B/B, however, the D/B contract is based upon a mix of prescriptive and performance requirements. These requirements need to be reviewed and revised to ensure that Metro clearly specifies its's core requirements, while providing appropriate latitude for the D/B contractor to innovate.

Submittals and Approvals - Metro will review the contractual requirements for approval of designs. Particularly in an alternative delivery approach, once the core parameters are established by the agency through the contract documents, approvals by Metro should be minimized to avoid delay type claims and to leave appropriate design risk with the contractor and its designer. Similarly, the requirements by third parties should be considered and updated by using a similar process. In parallel, Metro will review the standard Contract Data Requirement List (CDRL) list in the contract documents and optimize the requirements related to contractor shop drawings.

Emerging Technology - The technical documents will require updating to accommodate and specify parameters related to emerging technology (Also see Section 1.6.8, Sustainability and Resiliency).

Review from a Commercial/Claim Perspective - Technical documents will need review from a commercial perspective to optimize contractor bid prices. The technical documents should identify and require cost effective approaches and solutions, rather than having documents that are too conservative and thus driving bid prices up. Similarly, the technical documents need to be reviewed for claim mitigation.

1.6.5 Quality Management

Lessons Learned and Best Practices - This initiative will involve a thorough review and revision of Metro's Quality Management Program (QMP) and of the Quality Management Program Manual (QMPM) to incorporate Lessons Learned from Metro's projects and taking into account national Best Practices and experience from other transit agencies. Metro’s Quality Assurance Group will also define the steps necessary for the program to achieve ISO9000 certification.

Organizational Issues and Strategic Approach to Quality - Quality Management will be elevated within the PM organization, with overall reporting to the Chief Program Management Officer. As part of the organizational review, the role of quality management will be considered in relation to the quality/audit function of Metro project construction management staff. Similarly, the respective roles and responsibilities of Metro and the contractors will be reviewed, with the intent of focusing Metro's efforts more towards quality audits of the contractors QA/QC program and work. In conjunction with this process, the contract/specification will be revisited for compatibility with any changes in the quality responsibilities.

Quality Audit Approach and State of the Art technology - The establishment of Quality Audit strategies, schedules and requirements, the capturing of quality records and audit data and tailored quality reporting will be automated, using State of the Art technology. The use of technology to

facilitate real time reporting and input by multiple users will be reviewed as part of the Quality Management update. Further efficiencies can be realized by providing the contractor with input rights to submit data into the quality record system. This will allow more effective and real time tracking of QA/QC activities; surveillances, audits, non-conformance report (NCR), daily inspection report and test reports, field inspections etc. Once the information is recorded in the quality system/database, this provides the foundation for expedited quality reporting, customized reports and trend analysis.

1.6.6 Third Party

One area that has the most impact on the success of the delivery of a project, including cost and schedule, is the third party interface, particularly utility relocations. Utilities are widely recognized as one of the top two causes of delay in project development and delivery. Four critical factors contribute to challenges created by utilities:

- The lack of accurate, complete information about existing utility infrastructure and facilities that might be in conflict with the project
- A robust utility conflict process that uses a variety of invasive and non-invasive means to accurately locate utilities and thus identify potential conflicts
- The resolution, mitigation and overall management of the conflicts
- Appropriate resource levels throughout the utility process

Conversely, early identification and treatment of utilities has the potential to avoid later scope changes, additional excavation, redesign, delays and change orders etc. This aspect becomes even more important as Metro seeks means to accelerate projects.

Lessons Learned - Over the years, a number of lessons learned have been successfully applied to project implementation but experience has shown that further improvements are needed. This initiative will incorporate a comprehensive review of the utility process from concept level planning through the design process and construction such as advance utility relocations and utility relocations during the construction. The initiative will commence with a thorough review of past and recent lessons learned and the relative success of improvements of the utility processes adopted to date.

Strategic Planning - Pertinent information on projects scheduled for the next several years will be developed, together with an initial assessment of the level of utility work associated with the projects. This information will be supplied to the relevant municipalities and utility companies and a dialogue commenced regarding resource levels from the various entities necessary to support the projects including, if necessary, the use of consultants to extend core staff availability. These resources need to be available during the project planning process. At the same time, Metro will assess resource requirements in terms of specialist Metro staff and consultant support.

Municipal/Utility Task Force - Establish a strategic and/or project level Municipal/Utility task force to commence coordination and cooperation activities prior to the commencement of design. This task force should remain in place through the design and construction process to improve communication and to assist in resolving priorities.

Organizational Issues - Review the project organizational structure and reporting lines to enhance the position of the third party team within the project team structure. In addition, establish a city team for each jurisdiction that will be co-located with the project team to operate as an extension of the

project team, with an ability to provide expedited approvals of plans in the project office. The city team will have the authority to make decisions and approve the submittals. Furthermore, establish an executive-level employee within the municipal head office to act as coordinator between the various departments.

Delivery Methods and other Contractual Matters - Review available project delivery methods to expedite and improve the efficiency of the utility process. Review internal and external processes and procedures related to implementing utility contracts with a view to expediting delivery, including reviewing acquisition and contract administration processes. Such processes may include improving and streamlining the Metro acquisition process or pre-establishing a Metro bench Contractor to perform advanced utility relocation work. Job Order Contracting requires statutory authority.

Expand Pool of Contractors - Undertake advance market investigation and outreach to increase the available pool of specialist utility contractors. Assess Metro impediments that deter utility contractors. Based on feedback from the market place, review mechanisms to expand the pool of contractors, including reviewing risk share models and delivery methods.

Expedite Lead-in Activities or Undertake Them Earlier in the Project Life - One of the main emphases of the initiative will be on commencing the utility related processes earlier in the project life:

- Commence a robust utility investigation program within the planning phase to better identify major pitfalls that may sway the decisions on the locally preferred alternative.
- Consider starting non-intrusive Ground Penetrating Radar (GPR) investigations, robust pothole and trenching programs and utility relocations prior to the Record of Decision (ROD) in order to increase the time frame available for advance utility work.
- Commence establishing or updating Master Agreements with municipalities and utilities while in the Planning phase.
- Engage the municipalities and utilities at an early stage in the planning/design process and build in timelines for a Betterment process and/or exercising of Franchise agreements, linked into the project schedule.
- Ensure appropriate schedule and budget contingency is available, especially in the early stages of the project. Increase the schedule and budget for advance utility investigations and undertake more extensive physical investigations as well as adopting the latest technology for non-invasive investigations.
- Improve the streamlining of utility processes with city municipalities for obtaining variances, exemptions and approvals. Establish an executive level team consisting of city department needs to grant variances, exemptions and make determination of betterments.

1.6.7 Teaming with External Jurisdictions

The success of Stakeholder and Third Party Coordination is a major contributor to project delivery. Close coordination with all interfacing governmental entities and cities is important and this section of the Program Management Plan applies equally to all such entities and cities. However, given its key location within Los Angeles County and the volume of work inevitably undertaken within its jurisdiction, good coordination and cooperation with and between City of Los Angeles (COLA) and

Metro is consequently fundamental to the success of Metro's present and future construction program. While this section references COLA only for ease of reference, the content equally applies to all other interfacing cities in the County.

Metro and COLA have a long-standing relationship based on decades of interfacing over numerous transportation and transit projects undertaken within the COLA jurisdiction. The ambitious program and aggressive schedule associated with Metro's Measure M program dictates a comprehensive review of the relationship between the parties. This review will involve revisiting the respective roles and responsibilities and associated processes and procedures to facilitate cost effective and expedited project delivery.

The following includes general areas of planning and review that will enhance the relationship of the parties that contribute towards protection of the community and public infrastructure while improving project delivery. A Pilot Collaboration Project, for immediate implementation is planned to expedite the Westside Purple Line Project to achieve the necessary opening dates compatible with the 2024 Olympic Games:

Strategic Preplanning - Metro will develop a six-year plan to provide the basis of joint strategic preplanning with the COLA. Based on improved processes and procedures, Metro and the COLA will develop a high level implementation plan, identifying the appropriate resource levels to support the scope, schedule and budget constraints of the program. A similar process will be undertaken with the Los Angeles Department of Water and Power (LADWP). Such resources would include identifying core COLA staff and appropriate levels of consultant staff to address fluctuating staffing requirements, depending upon the actual needs of the projects. COLA staffing related to the various projects will comprise three types; empowered, co-located project-based staff; a small executive led COLA team to enhance coordination and communication between the various COLA departments. This COLA team will maintain consistency of approach and will resolve internal COLA technical conflicts; there will be limited departmental executive staff oversight and support staff. Partnering escalation ladder at the executive level will be maintained to facilitate issue resolution.

This programmatic approach will facilitate a better understanding not only of resource levels but also of potential impacts between projects and with planned or interfacing COLA projects, or projects by others requiring COLA and/or Metro approvals.

Metro and the City of Los Angeles will review legislation and other regulations which govern the relationships and the roles and responsibilities of the parties to ensure adherence to the necessary requirements of such legislation and regulations, including assessing opportunities for invoking Franchise Rights on third party utility companies.

Master Cooperative Agreement (MCA) - The existing MCA that governs the relationship between COLA and Metro dates back to 2002. The MCA needs updating to reflect subsequent organizational changes, respective roles, responsibilities, processes, and procedures related to the outcome of this specific initiative. The initiative will consider the added value associated with project specific permitting plans (SPP's) and the associated addition of process layers and then roll the constructive components of the SPP's into the updated MCA. The intent being to have one document that governs the Planning, Design and Construction phases of the projects. The joint process to update the MCA will respect the core roles and responsibilities of the parties, while seeking means of streamlining processes, expediting approvals and permits to support project budget and schedule efficiencies. Discussions should contemplate the addition of the Los Angeles Department of Water and Power (LADWP) into this new MCA with their associated terms and conditions while encouraging implementation of a dedicated Bench designer and contractor for all DWP work. The ownership of

the MCA should be elevated to Metro CEO/mayor's office level, such that each organization has a single point of contact, rather than the multi-departmental lines of communication.

Strategic Oversight - Establish a joint oversight committee, with Metro CEO/mayor's office leadership. The committee will establish a charter; vision/mission statement; outline roles and responsibilities; commit to a collaborative approach and agree an escalation ladder and associated process.

Design Criteria - Establish mutually acceptable design criteria for relevant types of infrastructure.

Design Process - The initiative will investigate the feasibility of incorporating dedicated, co-located city staff into the project teams, commencing during the Planning process. There are a number of anticipated benefits associated with the early collaboration. Necessary COLA requirements can be incorporated early in the project Planning and design such that the project schedule can be expedited. Such early involvement might also identify major challenges that could have a bearing on the choice of the locally preferred alternative selection. Proposed betterments requested by the City can be analyzed, priced and agreed up front, before the contractor procurement process commences. By this means a true design freeze should be achievable. Early involvement in the design process will not only allow COLA staff to contribute to scope development but also should facilitate early identification of approvals and permits for inclusion in the construction contract. Similarly, the key process requirements and relevant responsibilities can be agreed for incorporation in the construction contract. Empowering COLA staff to provide approvals at project level will facilitate fast tracking of the project.

Discussion of the responsibilities for warranty and post-warranty maintenance should be part of the planning process to reduce impacts during the approval of construction drawings." In an effort to memorialize and define maintenance responsibilities up front, which are linked to design efforts and design criteria, a base core maintenance matrix is to be prepared and agreed upon by all parties during the design process, which will ultimately be a key part of the operation and maintenance agreement executed later in the project.

Approval and Permit Processes - Under the initiative, Metro and COLA staff will jointly review the processes for opportunities to simplify and expedite the respective processes; clearly identify the relevant roles and deliverables. Where practicable, broad, blanket permits, rather than multiple geographically discrete or limited-time permits will be sought.

Construction Phase - The initiative will investigate the feasibility of incorporating a core, dedicated city staff, co-located in the project office, who are immersed in the construction priorities and empowered to sign plans and make decisions. The plan will be to enhance the means to better streamline field related processes such as street closures and Work Traffic Control Plans (WTCPs), expedite necessary construction related field change approvals to support project budget and schedules.

Operations and Maintenance - Where pre-defined, develop a draft document that outlines levels of responsibility and costs subdivided among parties, outline of a protocol, as well as point of contact to coordinate finalizing the agreement, especially if to be developed post-project completion.

Westside Purple Line - Pilot Collaboration (For immediate implementation)

The current Revenue Service Dates for Section 2 of the Westside Purple Line are as follows:

- December 31st 2026 Full Funding Grant Agreement (FFGA) date
- August 29th 2025 Metro Forecast

However, Metro has developed a plan that would allow acceleration of Section 2 and Section 3 to July 2024. Therefore, the Section 2 and 3 Acceleration Plan provided to COLA at the end of 2015, will require extraordinary coordination and approvals by the Metro Board and the FTA to further expedite the momentum that has been in motion for the past year. If the acceleration plans are to be achieved, all parties, including COLA must make supporting Metro's plan its top priority and provide complete cooperation in expediting approvals and jointly removing obstacles that would arise from following a business as usual approach.

Therefore, the interface requirements from COLA towards ensuring successful accelerated delivery of the Westside Purple Line Extension Section 2 and 3 Projects to meet the 2024 Olympics are as follows:

- The Metro Board approved the FY16-17 Annual Work Plan (AWP) for COLA. The AWP includes City staff for the Sections 1, 2 & 3 of the Westside Purple Line Extension.
- The COLA must begin the hiring process to ensure that positions can be hired immediately if the Measure M Ballot initiative is approved in November 2016.
- The COLA to manage its resources to follow priorities that are provided by Metro each month to support the major rail projects (Westside Purple Line Extension Sections 1, 2 and 3; Crenshaw/LAX and Regional Connector). Consultant extensions of staff or granting of overtime may be necessary to meet very tight deadlines. Betterments create schedule delays and discussing betterments in parallel with issuing approvals creates additional schedule impact.
- Granting of approvals will need to be in accordance with the requirements of the expedited project schedule, rather than the MCA durations.
- To facilitate expedited approvals and create an enhanced teaming relationship, it is recommended that the COLA staff physically co-locate with Metro and its contractors/consultants at Metro's Integrated Project Management Office. Along with co-location, the COLA project-based staff should be empowered to assign staff and approve submittals.

1.6.8 Teaming with Caltrans

The Metro Highway Program staff are responsible for the delivery of transportation improvements on the State Highway System and local arterials in Los Angeles County consistent with the Metro Long Range Transportation Plan (LRTP) and the projects/programs approved by the Metro Board under various sales tax measures. In this capacity, Metro works closely with the California Department of Transportation (Caltrans), the subregional Councils of Governments (COGs) and the cities in Los Angeles County to deliver regional, subregional, and local highway/roadway improvement projects. As local funding for project implementation increases, so does the need for greater coordination and communication between the parties.

The inter-agency relationships for specific projects are influenced by whether the projects are Metro-led, Caltrans-led, or Locally-led and by the specific sources and mix of funding. In order to further increase cooperation and coordination between Metro and Caltrans, expedite project

implementation, maximize funding opportunities, and build upon cost effective project delivery, the following initiatives will be pursued:

Initiate a Partnering Program and Develop a Partnering Charter - In order to promote and reinforce teamwork between the parties, an Executive level partnering summit will be undertaken with regularly-scheduled follow up meetings/workshops. This process will be initiated at Metro CEO and Caltrans District 7 Director level, utilizing an independent Partnering Facilitator. As part of that process, a joint Vision/Mission Statement, Partnering Charter, Escalation Ladder and the basis of a Management and Communication Plan will be established.

Lessons Learned Program - To improve inter-agency relationships and coordination and promote excellence in services and products delivered, Metro and Caltrans will initiate a Lessons Learned process that would progressively improve project delivery.

Establish a Management and Communication Plan - Adopting the bases for the Plan established by the Partnering process, Metro and Caltrans will develop a Plan outlining the strategic and project-level relationships between the parties, the respective roles and responsibilities, processes and procedures, lines of communication, and meetings and reporting procedures. The meetings are of managerial, functional as well as reporting nature and include but are not limited to the Technical Advisory Committee, Streets and Freeways Subcommittee, Measure R Advisory Committee, Metro/Caltrans Coordination committee, Metro/Caltrans Executive Management Committee, project-specific monthly and weekly meetings and invoicing/billing and other support meetings.

Establish a Joint Strategic Implementation Plan - In conjunction with the annual capital budget process, Metro and Caltrans will jointly establish a strategic work plan with a 5 year rolling horizon to assist in establishing each annual work plan.

Establish Project Management Plans - Successful project delivery requires mutual understanding of project scope, budget, schedule, quality requirements, constraints and risks and the most appropriate delivery methods. Project management plans will be developed for all large scale projects. Each Project Management Plan will outline the project-specific roles and responsibilities relevant to the specific requirements of each project. The individual project management plans will be largely based on Caltrans existing project development policies and procedures consistent with the guidance and methodologies of Project Management Institute's (PMI's) Project Management Body of Knowledge (PMBOK), the International Partnering Institute and the Federal Highway Administration (FHWA) requirements. However, reflective of the increasing component of local funding, Metro will undertake additional due diligence on projects, in conjunction with Caltrans, and will be actively engaged in identification of projects' scope of work and required budget, project management/oversight, evaluation and approval of the necessary changes, assessment and management of risk, project prioritization, and other activities as necessary.

Develop an all-inclusive Interagency Agreement - With the wide variety of projects, the various relationships between the parties and the variety of sources of funding, a review of the current agreements will be undertaken to assess the need for amendments if, or where, necessary for specific projects. Metro and Caltrans will also look into development of an all-inclusive streamlined agreement to minimize multiple changes that have historically resulted in delays in project starts.

Staff Co-Location - As part of the development of the strategic management plan, Metro and Caltrans will investigate the benefits and feasibility of co-locating staff. This co-location could be at agency headquarters, satellite, or construction offices.

Joint Coordination with COGs - Both Metro and Caltrans have collaborative relationships and business transactions with the COGs in development and implementation of locally funded/initiated projects. Funding for local projects is provided from various federal, state, and/or local sources. Even at the local level, funding can be derived from several sources. For instance, Measure R funding can be provided through Metro or from the local return component of Measure R. Metro and Caltrans are committed to working closely and proactively with the COGs to facilitate pooling of funds and resources to expedite project development and implementation.

1.6.9 Sustainability and Resiliency

Central to Metro's mission of continually improving the effectiveness and efficiency of Los Angeles' transportation system is the process of ensuring the implementation of sustainability-related efforts and infrastructure. Transit systems by definition already form a sustainable air quality strategy as any agency that reduces vehicle miles travelled, congestion, and promotes land use co-benefits as a result of transit investments lead to a reduction in criteria air pollutants and greenhouse gas emissions.

Although Metro has been implementing sustainability strategies, specifically as part of its construction efforts since 2003, sustainability only became a formal part of Metro's priorities in 2007, with Metro's Board's adoption of the Sustainability and Energy Policy; and the formation of the Ad Hoc Sustainability and Climate Change Committee. In the summer of 2008, the Board adopted the Metro Sustainability Implementation Plan (MSIP), which outlined specific actions to reduce Metro's contribution to climate change and to further increase sustainability. The MSIP is the cornerstone of Metro's sustainability activities and provides overall guidance in Metro's effort to implement sustainability-related projects in the most cost-effective and efficient manner.

Metro Rail Design Criteria has been revamped in 2012 to include provisions on emerging issues related to Climate Change and Greenhouse Gas Emissions reductions for implementation in all projects. Baseline specifications have been updated to provide specific details on how the preceding design criteria elements are going to be implemented. Sustainability Plans are now a requirement in all projects to ensure that environmental and sustainability commitments are developed and implemented during construction. Most recently, the State of California has updated its Greenhouse Gas (GHG) goals for a more aggressive implementation to meet 2030 goals to ensure that the long-term 2050 goals of 80% of 1990 GHG baseline guidelines are met in 2050. In addition, federally funded projects need to adhere to guidelines of the 2015 Fixing America's Surface Transportation Act requirement that projects that will be receiving federal funding to incorporate a resiliency framework in the execution of the project. It specifically requires that to improve the resiliency and reliability of the transportation system and reduce or mitigate stormwater impacts of surface transportation and from extreme weather events. This supplements USDOT Directive 5520, which in part states that the purpose of the directive is to establish the Federal Highway Administration (FHWA) policy on preparedness and resilience to climate change and extreme weather events. The directive further serves to implement relevant provisions of title 23 of the United States Code (U.S.C), to comply with Executive Order 13653, Preparing the United States for the Impacts of Climate Change (EO 13653), dated November 1, 2013, and further the U.S. Department of Transportation (DOT) Policy Statement on Climate Change Adaptation.

The Metro Board passed Motion #57 in February 2016 to provide a framework and opportunity for Metro to strengthen and expand its sustainability policies, plans, and implementation efforts for the benefit of the metropolitan region and to foster a greater level of coordination with peer agencies trying to address overlapping sustainability mandates. In response to this Board Motion, staff

commits to adapt its sustainability implementation strategy to reflect rapidly evolving technology, increasing impacts of extreme weather events, more stringent federal, state, and local requirements, advancements in best management practices for active transportation infrastructure, as well as the need for closer coordination among agencies.

To this effect, staff will be implementing the following strategies to ensure the implementation of sustainability, climate adaptation and mitigation, and resiliency strategies in all Measure M projects. Additional details are to be developed separately by staff in collaboration with identified stakeholders. These strategies and a brief explanation include:

1. **Collaboration** – Metro will continue to work with the Chief Sustainability Officers of the various jurisdictions within the County to focus on reducing the current gaps in Metro's collaboration with local government representatives dealing with storm water, street services, parks and planning departments to facilitate implementation of projects.

2. **Leadership** – Metro will promote the development of a "Sustainability Council" to advise Metro on its activities and projects. Members of the council can provide expertise on implementation of sustainable solutions; landscape and infrastructure design; local labor unions; and public health.

3. **Strengthening Relationships** – Metro will leverage existing best practices and programs throughout the County to incorporate into its programs and explore opportunities of collaboration specifically to address the inter-jurisdictional challenges to fully implement Green Infrastructure strategies. Maintenance of green infrastructure and the associated workforce skill development that is needed to do so are key issues to work through. Staff will explore the development, contractual implications, and implementation protocols for an incentive system that allows for the incorporation of best practice sustainability principles that are currently voluntary requirements (such as those in the CA Green Building Code) into major capital project proposals.

4. **Technical Assistance –** Staff will enhance Metro's training programs and include partnerships with non-profits in developing and implementing the program.

5. **Resiliency Policy** – Consistent with the requirements of the FAST Act to incorporate resiliency in all USDOT funded projects, Metro will develop and implement a comprehensive resiliency policy to make sure that Metro's projects comply with the requirements of related statutes, regulations, codes, guidelines, ordinances, and directives.

6. **Life Cycle Cost Analysis** – Life cycle cost considerations in for all projects has to be considered to ensure and understand how the results of multiple pilot efforts can now be optimized into full scale operations. The effects of incentives and hammers need to be examined under a life cycle lens so as to create equitable opportunities for more widespread implementation of sustainability-related strategies in all projects.

7. **End User Collaboration** – Staff would like to address the challenge in fully optimizing the optimization of identified sustainability goals during the operations and maintenance of sustainability-related projects. Staff will identify goal-oriented strategies especially those relating the management of relationships that should break down the barriers of operations

and maintenance challenges between Metro and other end users including but not limited to cities, special jurisdictions, and joint developers.

Financial factors form a big part of implementation of sustainability and resiliency principles in Measure M projects. Consequently, the following cost strategies should be considered to ensure that both long-term and short-term financial aspects are addressed:

1. Financial quantification and determination of a blended Return on Investment for all of the sustainability investments already made; and to the fullest extent feasible (through a life cycle costing method) determine the benefits of implementing the new projects to achieve identified existing goals as presented: Winter 2017.

2. Determination of the cost impacts associated with new regulatory requirements as well as additional mandates dictated by the 2016 California Green Building Code; the planning, execution, and maintenance of capital projects related to the consideration and use of green rating systems other than LEED; any new updated or mandated inter-jurisdictional ordinances; and the associated operations and maintenance costs and requirements for Metro to operate its existing systems as well as the need for additional resources (manpower) needed; Spring 2017.

3. Determination of feasible numerical sustainability goals that Metro can adhere to and the identification of the parties responsible for ongoing operations and maintenance associated with maintaining that goal through a full life-cycle analysis. These goals will include those already approved by the Board and those that staff could recommend in the future. Goals will represent best practice with consideration of current voluntary requirements like those in the California Green Building Code and those that emanate from the implementation of LEED and other to be considered green rating systems. Staff will also provide a standardized process into where such goals will be commenced (i.e., either in the planning process, design, construction, or maintenance), metrics for measuring progress towards their achievement, and regular progress reports to the Metro Board on successes and challenges towards meeting these goals: Fall 2017.

The Environmental Compliance and Services Section currently provides leadership and coordination roles to implement the preceding commitments. This is accomplished through an ISO 14001:2015 certified Environmental Management System in close collaboration with other departments including Planning; Program Management(Facilities Maintenance); Operations; Risk, Safety and Asset Management; and others.

2 Organization

2.1 MANAGEMENT ORGANIZATION

The Management Organization section describes Metro organizational structure and the responsibilities of staff that will be involved in the Capital Projects. There are three basic management levels overseeing Metro Capital Projects: The Board of Directors, who provide policy direction; the Chief Executive Officer and his direct reports, who provide executive direction; and the Projects Teams, who are responsible for implementation of the projects.

2.1.1 Metro Board of Directors

The Los Angeles County Metropolitan Transportation Authority Reform Act of 1992, or AB152, stipulates the composition of a 14-member Board of Directors (one non-voting member) as the governing body of Metro. The membership is shown below:

• Los Angeles County Supervisors	5
• The Mayor of the City of Los Angeles	1
• Members appointed by the Mayor of the City of Los Angeles:	
○ Member of the Los Angeles City Council	1
○ Private Citizens	2
• Members appointed by the Los Angeles County City Selection Committee represent the other 87 cities in the county	4
• Non-Voting appointed by the Governor	1
	14

The Metro Board of Directors is led by a Chairperson who is elected to serve one year in office. The Metro Board has standing committees comprised of five voting members each. Members of the Committees are appointed by the Chairperson to oversee staff efforts and to present recommendations directly to the Metro Board.

2.1.2 Standing Committees

The Committees are:

- **Finance, Budget and Audit Committee** - Provides oversight and fiscal policy direction regarding Metros fiscal wellbeing through the management of investments, debt proceeds, assets, budgetary resource allocations, and performance measurements and monitoring through audit activities.

- **Planning and Programming Committee** - Provides oversight and strategic agency-wide policy direction regarding the health and growth of the regional transportation system in the pursuit of enhancing mobility in Los Angeles County.

- **System Safety, Security and Operations Committee** - Provides oversight and strategic direction regarding all Metro bus and rail safety, security, and operational policies and plans, safety risks and mitigation strategies, emergency management, asset management plans, state of good repair program, fare and service changes.

- **Construction Committee** - Provides oversight and direction of Metro Construction projects and programs for effective and efficient planning, development and implementation of activities related to all transportation construction. This includes construction projects and program concepts, controls, schedules, design, engineering, specifications, contract provisions, change orders, agreements for work, and construction contracts related to Metro rail transit, commuter rail, transportation operations and highway projects.

- **Executive Management Committee** - Provides oversight and strategic agency-wide policy direction, including establishment of agency goals and objectives, management and control issues, and ensure that these are implemented throughout Metro.

- **Ad-Hoc Sustainability Committee** - Provides oversight for the integration of sustainability into the agency's functions, foster walkable and livable communities, minimize greenhouse gas emissions and environmental impacts and provide leadership in sustainability within Los Angeles County without compromising the core mission of providing an efficient and effective transportation system.

The Metro Board of Directors has the following direct reports:

- **General Counsel -** Provides legal advice on all issues before the Board.

- **Inspector General –** Directs the conduct of investigations, audits, reviews, and analyses relating to programs, operations, and contracts of Metro and recommends policy changes and remedial actions to correct deficiencies in work/process plans.

- **Ethics & Lobby Registration -** Reviews Board agendas for possible conflict of interest. Prepares Conflict of Interest reports for Board meetings and subcommittees pursuant to Government Cost Section 87103.

- **Board Secretary –** Directs preparation and distribution of official notices, agendas, recommendations, and other materials for meetings/public hearings of the Board of Directors and its Committees.

- **Chief Executive Officer –** Directs and oversees the implementation of policies and procedures consistent with Metro's Mission, Vision and Goals, and leads the strategic planning for current programs, and the future direction of Metro.

- **Board Staff** - A staff or delegated representative of a Board of Director to assist in fulfilling

his/her duties and responsibilities as a member of the Board of Directors.

2.1.3 Metro Executive Leadership Team

The Metro Board appoints a Chief Executive Officer (CEO) to manage the professional and administrative staff of Metro. This position directs and oversees the implementation of policies and procedures consistent with Metro's Mission, Vision and Goals, and leads the strategic planning for current programs, and the future direction of Metro. The CEO maintains communication and coordination with Board members, elected officials and government agencies. The Metro Executive Management Organization that supports the CEO is shown in Figure 4.

In support of Metro goals and objectives, the Metro Senior Leadership Team (SLT) provides expertise and leadership for:

- **Budget/Finance Management –** Ensuring adequate funding to meet program commitments;
- **Countywide Planning and Development –** Planning, Programming, and environmentally clearing the countywide transportation system in cooperation with other agencies; providing joint development projects and new business opportunities, as well as purchasing right-of-ways and providing relocation assistance to existing property owners;
- **Program Management –** Managing the engineering and construction of transportation systems and facilities;
- **Vendor/Contract Management –** Delivering timely vendor and contract management support to the Metro organization.
- **Risk, Safety and Asset Management –** Protecting the assets of the public by identifying, evaluating, and responding to the risk exposures of Metro.
- **System Security and Law Enforcement –** Providing protection for facilities, bus and rail systems and the public.
- **Communications –** Providing stakeholder communications and community outreach;
- **Human Capital & Development –** Developing a highly productive workforce by promoting and fostering respectful, trusting, and effective relationships among management, employees, and labor organizations.
- **Congestion Reduction –** Operating and maintaining the I-110 and I-10 Express Lanes, marketing and communications, planning of new express lane facilities and administration of Service Authority for Freeway Emergency (SAFE) and the Freeway Service Patrol (FSP) Program.
- **Extraordinary Innovation –** Supporting the Program Management team and Vendor/Contract Management in matters relating to innovation, unsolicited proposals, and public private partnerships.

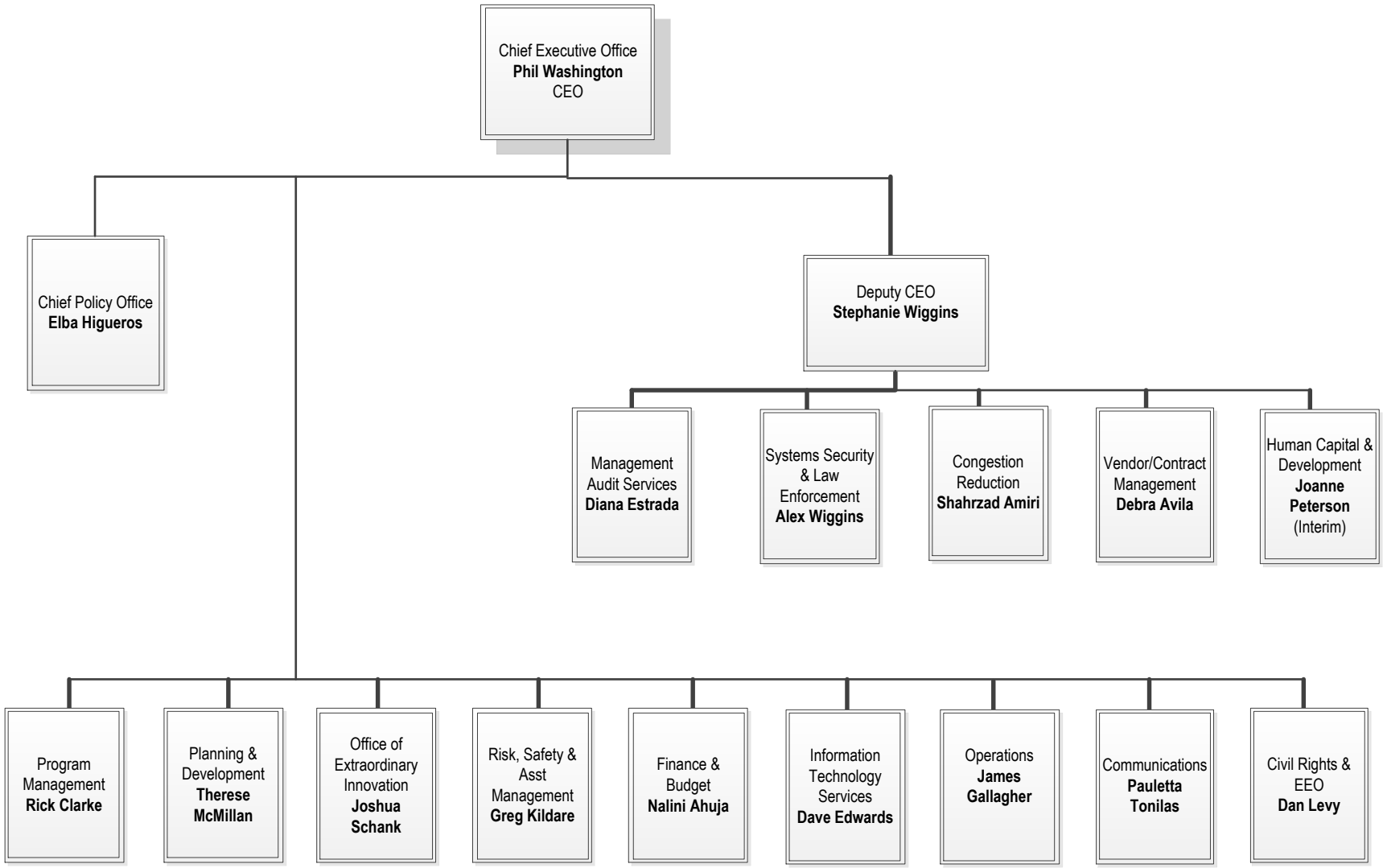
- **Civil Rights –** Ensuring that Metro fully complies with federal and state civil right requirements. Ensuring accessibility to Metro operations and facilities and discrimination compliance.

- **Audit –** Ensuring the integrity and efficiency of Metro policies and practices, protecting assets and revenues, and adequacy of internal controls.

- **Information Technology –** Enabling the achievement of Metro's business goals and objectives through the use of innovation and technology and improving the customer experience.

- **Operations –** Operating transit system elements for which Metro has delivery responsibility.

Figure 4: FY17 Organization Chart



Metro's Senior Leadership Team consists of the following Staff:

- Deputy Chief Executive Officer
- Chief Program Management
- Chief Planning Officer
- Chief Innovation Officer
- Chief Financial Officer
- Chief Operations Officer
- Chief Communications Officer
- Chief Risk, Safety and Asset Management Officer
- Chief System Security and Law Enforcement Officer
- Chief Policy Officer
- Chief, Civil Rights Programs
- Chief Information Officer
- Chief Vendor/Contract Management Officer
- Chief Human Capital and Development Officer
- Chief Auditor
- Executive Officer, Congestion Reduction Initiative

3 DEPARTMENT FUNCTIONS

3.1 OFFICE OF THE CHIEF EXECUTIVE OFFICER DEPARTMENT

The Office of the CEO (OCEO) supports the CEO in carrying out his vision for the agency. The OCEO is the central point of contact for the Board of Directors, Board staff, and employees. Supporting the CEO requires understanding the vision, mission, and goals, maintaining constant communication with the Board offices, working with staff to elevate issues, ensuring crossing departmental coordination and collaboration.

The passage of Measure M conveys the urgency and seriousness of Metro's transportation mobility responsibility. To ensure Measure M goals align with agency strategic goals, Measure M passage will amplify two vision areas in this office: Policy Oversight and CEO Leadership.

3.1.1 Policy Oversight

- The OCEO accepts and respects the authority and leadership of the Board of Directors. And, will implement the Measure M policies of the Board of Directors in an exemplary fashion.
- The OCEO will promote partnerships with the private sector, the community and public sector agencies in such a way that they see the agency as true partners in achieving the mobility and economic development goals of Measure M.
- The OCEO will promote an agency that operates in the most efficient, cost effective and customer responsive manner possible every hour of the day, every day of the week and in every area that we serve to align with the goals of Measure M.

3.1.2 CEO Leadership

- The OCEO will promote the breakdown of silos so that the agency becomes truly one entity, with respect to speaking with one voice and operating on the same wavelength for Measure M.
- The OCEO will encourage every employee to shed long held conceptual constraints on how things are done and constantly look for new ways to do things better.
- The OCEO will encourage all departments and divisions within the Agency to recognize Metro's obligations as a publicly constituted organization for full disclosure of the Measure M activities, responsiveness to Metro's customers and constituents and competent execution of Metro's assigned responsibilities.

3.1.3 Key Positions

3.1.3.1 Chief Executive Officer (CEO) – Directs and oversees the implementation of policies and procedures consistent with Metro's Mission, Vision and Goals, and leads the strategic planning for current programs, and the future direction of Metro. The CEO maintains communication and coordination with Board members, elected officials and government agencies and manages the professional and administrative staff of Metro.

3.1.3.2 Deputy Chief Executive Officer - Is responsible for providing assistance to the CEO in executing the overall mission of Metro and provides executive direction to bus and rail operations, facilities operations, safety and security. The Deputy Chief Executive Officer provides counsel to the CEO on developing the implementation of short-range and long-range Metro goals and business plans. The Deputy Chief Executive Officer formulates and recommends transit related operating policies and procedures or changes in existing policies and procedures for the Board of Directors. The Deputy Chief Executive Officer reports to the Chief Executive Officer.

3.1.3.3 Chief Policy Officer - Is responsible for providing executive-level support to the CEO and Metro's executive management staff and ensuring effective coordination with all functional units in the successful execution of projects and programs. The Chief Policy Officer establishes and maintains effective business and working relationships with Metro Board members, Board Deputies, internal staff, and consultants. The Chief Policy Officer also provides advice to the CEO on significant matters, provides policy direction, establishment of goals, major priorities and advice on the development of strategies and the resolution of major problems. The Chief Policy Officer reports to the Chief Executive Officer.

3.2 FINANCE AND BUDGET DEPARTMENT

3.2.1 Overview

Metro's Finance & Budget Department participates extensively in Metro's fiscal and project delivery cycles. Metro's Finance Business Unit is charged with maintaining long term fiscal stability in an aggressive construction environment. In support of Metro's project delivery efforts, the Finance & Budget Department is responsible for:

- Development of the annual funding plan that coordinates the timing, application, and receipt of available funding sources to fulfill the annual program.
- Funding oversight and quarterly monitoring of ordinance mandated capital project delivery to ensure that projects are performing to fiscal year budget plans and ultimately within the Board adopted Life of Project budgets.
- Assurance of necessary cash flow requirements to provide ongoing liquidity including the issuance of short and long term debt.
- Payment processing, project accounting, financial record keeping, and project billing activities.
- Supporting Metro's requests for grant, funding, loan, or other resource requests of outside agencies.
- Supporting ongoing compliance audits and the reporting requirements of third party and Ordinance established oversight committees.

- Personnel support through Payroll and Benefit Administration.

- Supporting local municipal agencies through the coordination, application, and disbursement of local funds in support of contributions to projects.

3.2.2 Functions

Metro's Finance and Budget Department comprises of five sub-units as follows:

3.2.2.1 Treasury

- Banking & Investments
    - Provides for the daily liquidity (cash flow) needs of Metro.
    - Works with Program Management/Office of Management and Budget (OMB) to identify short and long term project schedules and resource requirements.
    - Identifies investment horizons to ensure available funding while minimizing investment risks.

- Debt Management
    - Manages the agency's multi-billion dollar outstanding debt portfolio in accordance with the Board adopted Debt Policy. Ensures compliance with debt restrictions, reporting requirements, and funding is applied to appropriate projects as presented to investors and funding partners.
    - Prepares financial presentations to support Debt Issuances, Transportation Infrastructure Finance and Innovation Act (TIFIA Loans), FFGA applications and other Third Party resources.
    - Issues debt, short and long term, to support agency construction programs and projects.
    - Expects to issue an additional $19 billion for construction projects over the next several years (Not including any new financing related to Measure M).

- Pension and Benefits
    - Supports the Pension and Benefit requirements of every Metro employee including both Non-Contract and Represented.

3.2.2.2 Office of Management and Budget (OMB)

Metro Budget development is a multi-phased annual collaborative process amongst Metro departments, the CEO, and the agency's Board of Directors. OMB is responsible for the following activities:

- Conducts the Capital Program support that is responsible for the program/project budget planning and development for both the Annual (FY) and Life of Project (LOP) budgets for Metro's various capital projects currently valued at $2.2 billion for FY17.

- Developed and implemented a Key Performance Indicator (KPI) process to provide Metro management and the Board of Directors the status and performance of Metro's capital program.
- Assists Program Management to identify changing resource needs as projects progress and develop through their respective life cycles.

- Identifies available current year resources (Color of Money) in order to ensure program activities are able to proceed as planned.

- Leads the annual development of a multi-year Financial Forecast that incorporates the most recently adopted budget information and provides forecasted estimates for years two through ten/fifteen for all transit capital projects.

3.2.2.3 Accounting

- Financial Processing
    - Records all financial transactions and data.
    - Processes biweekly, an annual payroll of over $624M for 10,500 employees.
    - Accounts Payable pays over 72k vendor invoices annually in the amount totaling over. $4.5B per year and 97% Invoices paid on time from invoice date.
- Capital Projects & Grants
    - Oversees over 100 grants funding approximately 300 construction and capital projects.
    - Conducts billing for grant reimbursement.
    - Prepares Monthly Financial Status reports for all projects.
    - Directs capitalization and tracking of assets throughout the project life-cycle.
- Financial Reporting
    - Administers all financial and compliance (F&C) audits (Over 30 F&C audits per year).
    - Submits required reports to Federal and State funding partners and Creditors.
    - Provides No Audit Findings or Management Letters.
    - Prepares Quarterly unaudited financial reports to funding partners- TIFIA/ Bond Trustees.
    - Coordinates with Local Programming on annual reports to the Ordinance established oversight Committees.

3.2.2.4 Local Programming

- Supports local municipal agencies through the coordination, application, and disbursement

of local funds in support of contributions to projects.

- Coordinates with Accounting on annual reports to the Ordinance established oversight Committees.

- Tracks Local Agency capital reserve funds.

- Tracks the usage of Local Return Funds and ensures compliance with Ordinance guidelines.

3.2.2.5 Transit Access Pass (TAP)

- Supports the engineering and design, implementation and installation of necessary fare collection and sales functions at all Metro stations including Ticket Vending Machines (TVM), Fare Gates, and TAP Validators.

3.2.3 Key Positions

3.2.3.1 **Chief Financial Officer** - Ensures the agency meets the Board approved financial objectives and the external regulatory requirements related to financial operations are satisfied. The Chief Financial Officer also is in charge of providing annual reports to Sales Tax Ordinance Oversight Committees and leads the development of strategies and resolutions to major short and long term financial issues. This position oversees the agency-wide capital and operating budgets; processes and manages agency-wide budget performance, provides policy recommendations for Metro's Board of Directors, and manages the Finance and Budget business unit through the provision of leadership and policy direction to staff. The Chief Financial Officer reports to the Chief Executive Officer.

3.2.3.2 **Controller** - Manages and directs the activities of the accounting function including: accounts payable and receivable, payroll, general ledger and financial reporting, fixed assets, project accounting, and grants billing. The Controller also oversees preparation of State Controller's Report, Section 3 and Section 9 grant billings, Section 15 report, audited financial statements, monthly financial statements, variance analysis reports, and all internal and external financial report requirements and is responsible for FFGA/TIFIA reporting of approved program expenditures and compliance. This position also oversees the agency's Finance Information System (FIS) to ensure agency operations and reporting requirements are met. The Controller reports to the Chief Financial Officer.

3.2.3.3 **Treasurer** - Formulates policy and establishing goals for the Treasury department's administrative, investment/banking, pension & benefits, debt functions, and directs the development of investment and debt strategies to meet Metro's financial commitments. The Treasurer also develops and implements Metro's Investment and Debt Management Policies, oversees selection and management of financing teams for structuring and marketing debt, directs development of Metro's funding and cash management plans, manages portfolio of debt and lease financing transactions, works with Project Management, Planning, and other Finance & Budget staff to schedule debt issuance to fund projects, leads Finance & Budget effort in the agency's securing TIFIA or other alternative project financing instruments; and provides assurance of financial guidelines

compliance for FFGA, TIFIA, and debt covenants. The Treasurer reports to the Chief Financial Officer.

3.2.3.4 Executive Officer, Finance (OMB) - Leads the development of agency-wide capital and operating budgets and managing agency-wide budget performance. The Executive Officer, Finance also oversees utilization of funding sources and ensures adequate funding to meet ongoing project commitments; ensures all funding source guidelines are met and project resources (Local, State, and Federal) are available within the scheduled timeframes for a timely delivery of planned project activities; develops strategies to sustain a balanced budget, including the prioritization and controlling of expenditures, make/buy analysis, and the optimization of sources and uses of funding; collaborates with Project Management on the annual scheduling of multi-year projects to address shifts in priorities across all project modes and deliverables; updates current resource allocations to address changes in economic conditions; leads the development of financial models and projections for the multi-year business plan; leads the development of strategies and resolutions to major financial issues in the long-range planning and annual budget cycles; and works collaboratively with the Treasurer to incorporate various financing tools and mechanisms within the scope of project requirements. The Executive Officer, Finance reports to the Chief Financial Officer.

3.2.3.5 Executive Officer, Finance (TAP) - Develops the implementation strategy of all fare revenue collection and sales processes; leading the implementation of capital procurement and installation of Fare Collection equipment; and coordinating with transit project directors/managers and designers to incorporate Fare Collection equipment requirements including Ticket Vending Machines, Fare Gates, and all necessary communication and infrastructure requirements. The Executive Officer, Finance reports to Chief Financial Officer.

3.2.3.6 Deputy Executive Officer, Finance (Local Programming) - Oversees the allocation and distribution of Local Return and State and Federal formula funds to individual cities within the County. The Deputy Executive Officer, Finance also monitors local jurisdiction application and use funding to ensure conformance with eligibility guidelines, and works with local jurisdictions to establish and manage capital reserve funds. The Deputy Executive Officer, Finance reports to the Chief Finance Officer.

3.3 COUNTYWIDE PLANNING AND DEVELOPMENT DEPARTMENT

3.3.1 Planning, Programming & Grants

3.3.1.1 Long Range Planning & Coordination

Planning is responsible for long range planning, regional transit planning and systems analysis and research within Los Angeles County. This department develops and supports the implementation of complex countywide plans and programs such as Long Range and Short Range Transportation Plans (LRTP and SRTP) and manages the financial aspects of the Biennial Call for Projects competitive grant process. Major efforts include the implementation of the Congestion Management Program (CMP), which enables cities to receive annual gas tax apportionments for meeting statutory CMP requirements and coordination with South Coast Air Quality Management

District to ensure that the $297.6 billion of LRTP projects are in compliance with the federal Clean Air Act. This unit also provides technical planning analysis including travel demand modeling, geographic information system analysis, and census data analysis. These tools are essential to the development of corridor and countywide studies, and are required for the approval of federal transportation funds.

3.3.1.2 Strategic Financial Planning & Programming

The Strategic Financial Planning group is responsible for integrating diverse federal, state, local, and private financial resources to accomplish the Long Range Transportation Plan, as periodically updated by the Metro Board of Directors. In doing so, this unit seeks to preserve local financial resources and funding flexibility to enable the delivery of planned services and capital projects, including existing operating commitments, state of good repair needs and improvements to the regional transportation system in Los Angeles County. From subway operations to light rail operations, from Bus Rapid Transit to paratransit, from highway capacity improvements to rail corridors, the various financial resources must be coordinated and deployed in a strategic manner in order to accomplish and/or accelerate the Long Range Transportation Plan. Major functions of this unit includes long range financial planning and policy analysis, State and national policy analysis, Measure R policy analysis, Countywide transportation improvement program, State transportation improvement program, and funds tracking and monitoring for all Call for Projects funding agreements, sub-grantee and pass-through agreements.

3.3.1.3 Regional Grants Management (RGM)

Grants management and administration activities include grant development, project and program monitoring, reporting and financial oversight. Working with federal, state and regional/local funding policy makers and partners, this group seeks to optimize policies and maximize funding for Los Angeles County transportation programs and projects by obtaining and overseeing formula and discretionary federal, state and regional/local grant funds and federal loans for the agency and its sub-grantees. These activities support Metro's mission of providing the leadership and resources for a safe, efficient transportation system that keeps Los Angeles County moving. RGM is responsible for managing and administering billions of dollars in federal, state and regional/local grant funds and federal loans to support Metro projects, programs and services for Metro and its sub-grantees.

3.3.2 Transit Planning

3.3.2.1 Project Development Support

The Planning Team also provides integrated support through all phases of a Transit project's life, from early project planning through construction. While Planning's role evolves through the life of the project, the Planning team's involvement is essential to each project's success. As the lead through the Planning and Environmental phases, the Planning team acquires a trove of project knowledge and builds stakeholder relationships that help mitigate areas of development risk during the design/construction phases. Looking forward, effective coordination between Planning and Program Management will be critical to the departments' collective ability to deliver on the Metro capital program. Below is a description of the Planning Team's role in the key phases of project development. As illustrated below in Figure 5, the assumed project is a major transit extension; some of the process steps would be modified if another project was the subject.

3.3.2.1.1 Feasibility Study (lead)

During this initial study phase, the Planning Team explores the general feasibility of a range of potential transit modes and routing concepts developed to address a specific unmet transportation need. This could also be a focused analysis to determine the feasibility of a specific mode or corridor. The feasibility study typically considers factors such as mode technology fit, physical constraints/challenges, ridership potential, compatibility with the regional transportation network, and environmental issues. The objective of this phase of study is to establish the basic feasibility of potential modal/routing concept(s), and evaluate the merits of carrying them into a more comprehensive Alternatives Analysis (AA) process, where more detailed conceptual development takes place.

3.3.2.1.2 Alternatives Analysis (AA) (lead)

In the Alternatives Analysis (AA) study, the Planning Team initiates the formal process for defining, evaluating and screening various modes and alignment alternatives developed to address a corridor-specific transportation problem. The characterization of the urban transportation problem is a key element of the AA study, as it establishes the Purpose and Need for the Project. In addition, and if appropriate to the project, the Planning team initiates the conceptualization of station designs based on established systemwide design criteria. The intent of the AA Study is to identify those concepts that best address the transportation problem, and have sufficient merit to recommend for study in an environmental document. The evaluation framework typically considers a wide range of factors, including ridership, cost, regional connectivity, consistency with community goals, economic development potential, design feasibility and environmental impacts. Per direction from the Board, the AA Study is where Planning team investigates First/Last Mile (F/LM) considerations and Bus/Rail (B/R) interface improvements to enhance the effectiveness of the transit project. Another critical aspect of this phase of work is demand forecasting, which informs the operational scale and sizing of infrastructure requirements, including supplemental facilities such as Park & Ride (P&R) facilities based on both modeling and experience of the Parking Management group.

3.3.2.1.3 California Environmental Quality Act (CEQA)/National Environmental Policy Act (NEPA)

The California Environmental Quality Act (CEQA) requires public agencies in California to study and publicly disclose information about the environmental impacts resulting from a proposed project and adopt all feasible measures to mitigate those impacts that exceed the threshold of significance. When Federal funding is used in the project, coordination with the appropriate Federal agency (under NEPA) is necessary during the CEQA process to ensure both the appropriate level of Federal environmental clearance and adherence to the environmental commitments during the construction and operations and maintenance phase. There are several levels of environmental clearance and compliance under CEQA/NEPA depending on the magnitude of the significant impacts that exceed the threshold of significance. The Federal Transit Administration specifically requests a quality control/assurance review of the environmental documents by Metro's highest ranking environmental officer prior to FTA's concurrence of any environmental document. Other Federal agencies that Metro usually deal with include the Federal Highways Administration, Federal Aviation Administration, or the Federal Railroad Administration. These and others may have additional or different requirements (on a case by case basis) compared to that of the FTA.

In an EIR, CEQA requires the public agency to include and study all reasonable project alternatives that would achieve the basic objectives of the project. Typically, the range of project alternatives is

established through the AA study, which is considered part of the administrative record. In cases where the project being contemplated involves a major federal action, the Planning Team prepares an Environmental Impact Statement (EIS) in accordance with the National Environmental Policy Act (NEPA). An EIS documents the Purpose and Need for an action, describes reasonable alternative courses of action, identifies impacts of the alternative, and commits to mitigation measures, as needed. The NEPA document can be prepared either concurrent with or after the CEQA document. If the latter, it is possible prepare a more focused NEPA document based on the CEQA analysis.

In a full EIR/EIS, Planning and Environmental Compliance and Sustainability (ECS) Section (in the Program Management Department) work very closely with one another to ensure that technical studies that go into the assessment of impacts are sound and consistent with construction and operations and maintenance best practices. ECS Section is responsible for monitoring and oversight of all environmental commitments after an EIS/EIR is adopted/certified by the Metro Board.

When new environmental impacts during construction requiring an Addendum (if the impacts do not exceed the threshold of significance) or a Supplemental EIR/EIS (when they do), ECS Section and the Planning Department coordinate in the development and execution of the additional environmental documentation. Either can take lead on the effort depending on the contract vehicle and level of technical assessment needed in relation to the phase of the construction project. These environmental clearances may arise resulting from, for example, the need to provide assistance in the real estate acquisition of a necessary parcel to continue the project as a result of changes in the project scope.

ECS Section is often the lead in preparing other environmental documents under CEQA and NEPA. Regardless of the level of environmental clearance, ECS Section is responsible for monitoring all of the environmental commitments adhered to in these environmental clearance documents during construction. Under an Environmental Management System, ECS Section ensures continuance of the commitments and compliance throughout the operations and maintenance of built assets throughout their life cycle.

3.3.2.1.4 Advanced Conceptual Engineering/Preliminary Engineering (ACE/PE) (support)

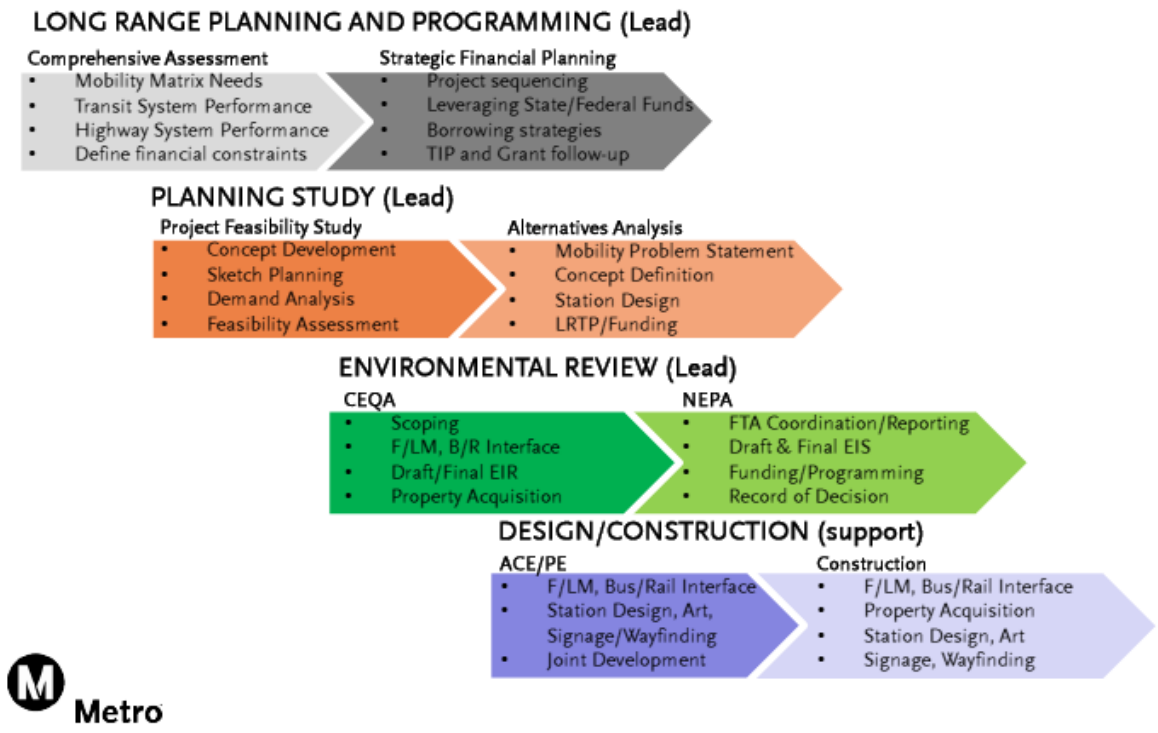
Once the Locally Preferred Alternative (LPA) has been selected by the Board and there is greater certainty on the project scope and funding, the proposed project advances into the ACE/PE phase, which involves advancing the engineering and overall design to a sufficient level of engineering, typically to 30%. This level of engineering is needed to inform the cost estimate, the selection of a delivery method and preparation of solicitation documents. Throughout this phase, the Planning Team typically supports the Project Management by providing ongoing planning/environmental support to address impacts relating to changes in the project scope that were not anticipated in prior phases of work, and provide ongoing feedback on strategies to address mitigation requirements in the preparation of construction bid documents. In addition, and as applicable to the project, the Planning Team oversees the selection of station artwork and reviews signage/wayfinding submittals to ensure conformity with Metro environmental graphic requirements. The Joint Development/Transit Oriented Communities (TOC) Team also advises each project team on opportunities to maximize the potential to integrate stations into the community, as well as maximize the potential for development at and adjacent to Metro right of

way and station entrances. Special attention is given to techniques for promoting community integration and incorporating joint development considerations in the design-build (D-B) scope of work. Specific First/Last Mile (F/LM) and Bus/Rail (B/R) or Bike/Bus (B/B) interface solutions are developed for incorporation into the project scope with significant input by the Active Transportation Group from the Planning Team. Project responsibility transitions during the Preliminary Engineering phase to the Program Management Department.

3.3.2.1.5 Construction/Testing (support)

During the Construction phase, the Planning Team continues providing ongoing planning and environmental support and acquires real estate necessary for the project's construction in accordance with the project's schedule. The Real Estate Team provides continuing advice on cooperation with adjacent property owners interested in integrating into the Project. Throughout Construction, the Planning Team works closely with the selected artists on the fabrication and installation of station artwork and continues with review of branding, signage/wayfinding and station design submittals. Planning support during construction also involves continuing efforts to ensure that F/LM, Bus/Rail improvements and parking design considerations are maintained and implemented as key project elements.

Figure 5: Planning Lifecycle and Key Activities



3.3.3 Real Estate Acquisition Program

3.3.3.1 Overview

Property acquisition and management of real property is the responsibility of the Real Estate Section, which is housed in the Planning Group. The Section may recommend the use of professional qualified consultants to assist with the appraisal, environmental investigations, acquisition services, and relocation services. The Real Estate Section also works with ECS Section in the review and resolution of environmental issues associated with the purchase of new properties or those related to Metro-owned parcels.

The process of acquiring Right-Of-Way (ROW) includes five stages are stated below:

Certification and approval of required real estate.

- Appraisal and environmental investigation of required property.
- Acquisition, either through negotiations or eminent domain (condemnation).
- Relocation of occupants (owners and/or tenants).

- Property management, until required by Construction for demolition of improvements.

3.3.3.2 Compliance with State and Federal Law

The Los Angeles County Metropolitan Transportation Authority ("Metro") is empowered to acquire property through authority conferred by the State of California in Public Utilities Code Section 130051.15. Eminent Domain procedures are set forth in the California Code of Civil Procedures 1230.010, etc. Metro conducts all real estate acquisition and relocation activities consistent with applicable state and federal procedures. The following specific federal regulations apply to the Regional Connector Transit Corridor Project property acquisition program:

- Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 and subsequent amendments (Uniform Act).

- 49 CFR Part 24, dated January 4, 2005, titled Uniform Relocation Assistance and Real Property Acquisition for Federal and Federally-assisted Programs (Final Rule).

- FTA Circular C5010.1D (Current Version) titled Grant Management Requirements.

- Public Law 112-141 dated July 6, 2012 titled *Moving Ahead for Progress in the 21st Century Act (*MAP-21") Uniform Act Amendments that were made in MAP-21 Section 1521 became effective on October 1, 2014

The objective of the above regulations is to assure that owners of real property to be acquired for federal, federally assisted, and local projects are treated fairly and consistently; that persons and businesses displaced be treated fairly, consistently and equitably; and that the regulations be implemented in a manner that is efficient and cost effective.

3.3.3.3 Real Estate Acquisition Management Plan (RAMP)

Prior to the implementation of the acquisition process, the funding agency may require the preparation of a RAMP for review and approval. The RAMP is a planning and control document includes the real estate goals and methodology for completing the real estate program.

3.3.3.4 Accountability and Delegation of Authority

The Metro Board of Directors is responsible for the policy direction of the property acquisition and relocation program. The Board and Chief Executive Officer have delegated certain approval authority for the establishment of just compensation for property acquisitions. The Board has exclusive authority for the approving the acquisition of property by eminent domain.

3.3.3.5 Identification/Certification of Required Real Estate

Right of way engineering is the responsibility of the Project Design and Engineering team. Right-of-Way maps are developed during Preliminary Engineering, which identifies every parcel affected by the Project alignment. From the maps, preliminary title reports are obtained to ascertain the owner(s) of record and a legal description of the parcel. The title report is provided to the Project Director/Manager to use in preparing the certification of parcels necessary for the project.

Detailed ROW requirements for stations, station platforms, track lines, traction power substations, park and ride lots, access roads, utility easements and construction easements are identified and recommendations are developed based on those requirements. To support recommended ROW requirements, the Engineering function of the Project prepares certification packages during the advanced preliminary engineering phase for each property impacted by the Project, which contain detailed property plats, ROW maps, legal descriptions and Property Impact Statement. Certifications for required real estate are based on an analysis of adopted ROW selection criteria, design requirements, potential location of station or line segment, construction requirements and techniques, real estate cost and relocation impacts and likelihood of contamination of the required real estate.

Following receipt of an approved certification package signed by the Project Director, the acquisition process is initiated for the required real estate which may include fee simple interest, permanent easements, temporary construction easements, and or right of entries.

3.3.3.6 Appraisal Process and Environmental Investigation

3.3.3.6.1 Appraisal Process

All offers for acquisition of real estate are based on the fair market value of the property as determined by a licensed independent appraiser or a Metro staff appraiser. Just Compensation for the property is then based on fair market value estimate. Independent fee appraisers are selected based on their qualifications and experience and must be licensed with the California Office of Real Estate Appraisers. The appraiser must prepare an independent appraisal report to provide an estimate of fair market value, which complies with the provisions of the Uniform Standards of Professional Appraisal Practice (USPAP). Appraisers are required to inspect each property and to offer the owner the opportunity to inspect the property with him and to provide information, which they think has a bearing on the value of the property. When the estimated value of the property to be acquired exceeds $500,000 or is a complex acquisition, two appraisals may be obtained.

3.3.3.6.2 Environmental Investigation

After it is determined that a property is required for a project, an environmental "due diligence" report or an Environmental Site Assessment (“Phase 1 ESA”) is conducted on the property. This environmental investigation identifies any hazardous substances that may affect the property, and, if necessary, gathers information on the nature and extent of those substances along with the remediation measure necessary to bring the property into compliance with acceptable environmental levels.

The results of the investigation determine if remediation of the property is necessary prior to Metro acquisition of the property or if the fair market value of the property is affected by environmental findings.

These results are reviewed with the ECS Section and appropriate actions to either abandon the transaction or continue with negotiations are addressed, The Real Estate Section works with ECS Section for the execution of any remediation work associated with any acquired parcel until such time the parcel is ready for the purpose in which it was acquired by Metro.

3.3.3.7 Acquisition, Relocations, and Eminent Domain

3.3.3.7.1 Offers and Negotiations

Every reasonable effort is made to acquire required real property through negotiation. A Real Estate staff person is assigned to each parcel and attempts to personally contact each property owner to explain the effect of the acquisition and to make an offer of just compensation. The written offer is accompanied by a summary of the appraisal indicating the basis for the amount established as just compensation. A property owner is given a minimum of 30 days in which to consider the offer. Every effort is made to acquire the property through negotiations; however, if agreement is not reached for the offered price, an administration settlement may be pursued prior to initiating condemnation proceedings. Negotiations for relocation do not commence until the parcel is environmentally cleared under CEQA/NEPA or both.

Relocation

The Federal Uniform Act Relocation Assistance and Real Property Acquisition Policies Act of 1970 ("Uniform Act") provide for certain relocation payments in addition to the amount a person receive as just compensation for property. The Metro relocation program has been designed to conform to the requirements of the Uniform Act. Metro has Relocation Assistance policies and procedures, which outline relocation benefits available to residential and commercial displacements. The revisions to the Uniform Act, which became effective January 4, 2005, have been incorporated into the Real Estate Section's operating procedures.

Acquisition by Eminent Domain

If it is determined that a negotiated settlement cannot be reached, the Metro Board of Directors is requested to authorize condemnation action. Upon approval by the Metro Board of Directors, a condemnation attorney or General Counsel is retained to file the condemnation suit. Negotiation continues with the owner and the owner's attorney during the condemnation suit in an effort to reach settlement.

The average time to acquire a parcel through negotiations is six to nine months after just compensation is determined. The average time to acquire possession of a parcel through condemnation is approximately six months after the Metro Board of Directors adopts a Resolution of Necessity. If relocation is necessary, the average time for acquisition is be extended.

3.3.3.8 Acquisition Schedule

The Real Estate Section develops and maintains a schedule of property acquisitions based on the need dates for the various parcels as determined by the Project. It identifies projected dates for various stages of the acquisition process and updates the schedule regularly. The time required to complete an acquisition depends on many factors including whether an acquisition can be negotiated, whether an action for condemnation is required or whether relocation of a residential occupant or business is involved. Real Estate projects an 18 to 24 month period to deliver a parcel to construction. The Engineering group must advance the final design process sufficiently to certify that the properties identified during preliminary design are needed for the Project. The Project must also establish the "need date" for each property to assist Real Estate in prioritizing the acquisition schedule. The property acquisition schedule must be integrated into the baseline project schedule and must be flexible enough to meet project modifications in order to assure possession of all necessary interests prior to the start of construction.

3.3.3.9 Real Estate Budget

A real estate budget is prepared during the preliminary engineering phase of the project based on the information available. The Real Estate Section's appraisal staff prepares a cost estimate by researching property values in the area of the Project and applying the values to the projected property interest that must be acquired. Each Project's right of way budget is composed of costs for appraisal, title and escrow, acquisition (purchase price of land, improvements and fixtures and equipment), environmental site assessment, relocation benefits, and consultant fees. The cost estimate usually includes a contingency. The contingency is consistent with the risk related to right of way acquisition and includes an increment for potential condemnations. As the project alignment is better defined, cost estimates are updated. The Project Budget is further updated when acquisitions and relocations are actually completed so that the costs estimates and project budgets are reflective of the actual anticipated costs.

3.3.3.10 Property Management

Owners and tenants may continue to occupy properties on an interim basis after Metro acquisition, paying rent to Metro, until the property is needed for construction. Interim property management may include short-term leases for continued uses of a building until it is needed for construction, fencing and securing of vacant parcels or structures, and maintenance of land.

Rental income from federally funded parcels is considered a source of income to the Project and is credited to the Project. Revenues and expenses generated from the leasing of real estate are incorporated into the project accounting system and displayed in cost reports. Leases entered into by occupants are terminable upon 30-day notice. This provision ensures the availability of the parcel as required by construction schedules. If not under lease, onsite security measures, such as security patrol or fencing, secure the property until the property is turned over to Construction. Any structures remaining on the property will be demolished as part of the construction contract.

3.3.3.11 Excess Real Property

When Metro determines that real property under its control is no longer required for transit purposes it is declared surplus property. Real property declared as surplus by Metro is included in the Excess Property Utilization Plan. The Excess Property Utilization Plan includes an inventory list of the property location; summary of any conditions on the title, original acquisition cost, and the federal participation ratio; appraised value and date; a brief description of improvements; current use of the property and the anticipated disposition or action proposed. Appropriate approvals are obtained when a property is disposed by sale or exchange.

3.3.4 Joint Development

Joint Development is defined by the federal government as "a public transportation improvement that enhances economic development or incorporates private investment, including commercial and residential development, pedestrian and bicycle access to a public transportation facility, construction, renovation, and improvement of intercity bus and intercity rail stations and terminals, and the renovation and improvements of historic transportation facilities, because the improvement enhances the effectiveness of a public transportation project and is related physically or functionally to that public transportation project, or establishes new or enhance coordination between public transportation and other transportation, and provides a fair share of revenue for public transportation that will be used for public transportation". Metro encourages joint development

opportunities in connection with its capital projects. All joint development activities are under the direction of the Senior Executive Officer – Countywide Planning and Development. The Joint Development group is the source of initial community engagement and Development Guidelines for eligible sites, Request for Proposals (RFP) for development of those sites, and first point of contact for all developers submitting proposals both solicited and unsolicited. Evaluations of joint development proposals are based generally upon their marketing feasibility, financial return to Metro, sensitivity to the local community design and function, compatibility with and the ability to enhance the transit project and the qualifications of the developer. The Metro Board of Directors must approve all joint development agreements.

The Joint Development Program has a distinct entrepreneurial approach. Private developers, joint ventures, and/or non-profit developers are solicited and actively encouraged to propose projects. Metro is both proactive and reactive. It issues joint development proposals of its own through RFPs and it entertains unsolicited proposals, similar to the operation of a community redevelopment agency. Unsolicited proposals will be vetted through the Joint Development Unsolicited Proposals Policy, and generally trigger Metro to start a modified RFP process for that site.

Metro achieves joint development primarily through the long-term ground lease of Metro real property or air rights around and above Metro rail stations for development to generate long-term income streams to Metro for transit rail operations.

3.3.5 Key Positions

3.3.5.1 Chief Planning Officer - Manages Metro's planning and programming services and provides executive direction in the key functions that comprise the Countywide Planning department. Those functions include Long Range Planning and Coordination, responsible for the Long Range Transportation Plan, the Call for Projects and the Short Range Transportation Plan processes; Transportation Development and Implementation (TDI) , responsible for project development, and management and/or implementation of multiple modes of transportation within Los Angeles County; Programming and Policy Analysis**,** responsible for strategic capital planning, regional and local programming, and regional grants management and administration for all fund sources that support Metro's mission of improving mobility and promoting innovative and a comprehensive transportation system throughout Los Angeles County; and Real Property Development and Management, responsible for developing, planning, directing, and managing joint development projects as well as new business opportunities within Metro, in addition to high-level direction on all Metro real estate activity. The Chief Planning Officer, reports to the Chief Executive Officer.

3.3.5.2 Senior Executive Officer, Planning, Programming & Grants Management Manages the Long Range Planning, Strategic Financial Planning and Programming, and Regional Grants Management groups. The Long Range Planning unit develops and implements complex countywide plans and programs such as Long Range and Short Range Transportation Plans and manages the Biennial Call for Projects competitive grant process. The Strategic Financial Planning and Programming group integrates diverse federal, state, local, and private financial resources to accomplish the 2009 Long Range Transportation Plan as periodically updated by the Metro Board of Directors. This unit seeks to preserve local financial resources and funding flexibility to enable the delivery of planned services and capital projects, including existing operating commitments, state of good repair needs and improvements to the regional transportation system in Los Angeles

County. The Regional Grants Management group performs grants management and administration activities that involve grant development, project and program monitoring, reporting and financial oversight. Working with federal, state and regional/local funding policy makers and partners, Regional Grants Management staff seeks to optimize policies and maximize funding for Los Angeles County transportation programs and projects by obtaining and overseeing formula and discretionary federal, state and regional/local grant funds and federal loans for the agency and its sub-grantees.

3.3.5.3 Senior Executive Officer, Transit Corridors and System wide Planning - Manages the Transit Corridors, Regional Transit Planning, Sub Regional Planning, System Wide Planning, and Art and Environmental Graphic Design Programs groups. The Transit Corridors group leads Metro's planning and environmental clearance for all transit projects. The Regional Transit Planning group conducts technical studies to determine the feasibility, cost and effectiveness of implementing Bus Rapid Transit (BRT). Regional Transit Planning staffs the Bus Operators Subcommittee and General Managers meetings, two forums for the exchange of information and coordination among the municipal operators and Metro. The Sub Regional Planning group leads Metro's work with the sub regional partners including local jurisdictions and Councils of Governments (COGs). This group chairs Metro's legislatively mandated Technical Advisory Committee and staffs its Streets and Freeways Subcommittee, manages Call for Projects grants by working directly with project sponsors and represents Metro on Subregional planning studies. The System Wide Planning group leads initiatives to improve and enhance system wide station branding and continuity, improve the passenger experience, and reduce operating costs. The Art and Environmental Graphic Design Program group develops implements and oversees the agency's multi-faceted public art program, integrates site-specific artworks into transit facilities and enhances the visual quality of Metro customer environments. This group also ensures that Wayfinding signage meets federal and state requirements, is consistent with Metro policies and is clearly visible and understandable by Metro's customers to ensure ease of use of the system.

3.3.5.4 Senior Executive Officer, Strategic Initiatives and Real Property Management - Manages the Active Transportation and Bike Program, Countywide Sustainability Program, Shared Mobility and Implementation, Strategic Initiatives, Parking and Joint Development, Metro Research and Real Estate Acquisition and Property Management, and Union Station Management groups. The Active Transportation and Bike Program manages the countywide bicycle and pedestrian projects, programs and policy development. As a multi-modal, multi-disciplinary unit, the Active Transportation and Bike Program team leads, coordinates and supports local jurisdictions in the development of regionally significant projects that encourage, promote and facilitate environments that promote walking, bicycling and transit use. The Countywide Sustainability Program implements recently developed board policies including the Countywide Sustainability Planning Policy and the First/Last Mile Strategic Plan, as well as developing new initiatives and pilots such as an Urban Greening Plan and Toolkit. The Shared Mobility and Implementation group plans shared mobility programming and implementation for van pool, rideshare and bikeshare programs. The Strategic Initiatives, Parking and Joint Development group undertakes activities that integrate transit planning with local land use decisions as well as special projects that support Metro's mission. The Metro Research group conducts annual and special purpose passenger and internal surveys to inform the organization on performance, passenger experience and other issues that are used to improve operations and communications. The Real Estate Acquisition and Property

Management group manages real estate services including appraisal, services, environmental investigations, acquisition of real estate for administrative and transit projects, disposition of surplus property, and property management including short and long term lease management. The Union Station Management group manages leases, maintenance, preservation, and repairs projects at Union Station.

3.4 PROGRAM MANAGEMENT DEPARTMENT

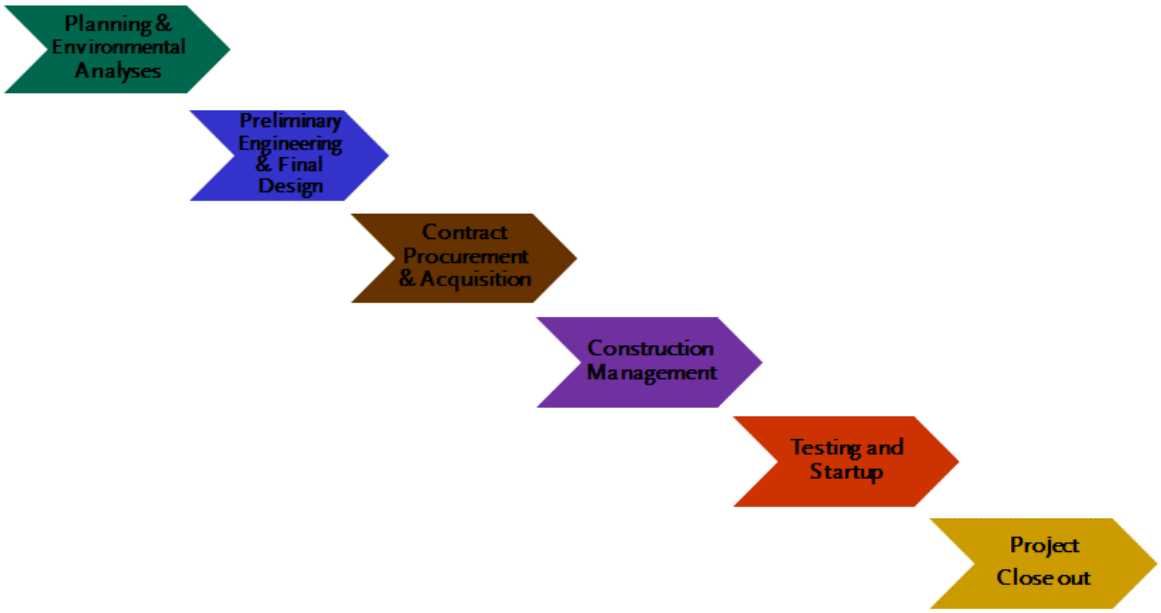
3.4.1 Overview

The Program Management Department is focused on the successful delivery of capital projects, including transit, highway, and regional rail projects. Safety, quality, and on-time/on-budget delivery are major goals. The department is comprised of the following functions: Program Control; Engineering; Transit, Highway and Regional Rail and Facility Capital Project Delivery; Environmental Compliance & Sustainability. The Program Management Department supports capital projects across the project lifecycle as shown in figure 6.

For several years, Metro's capital program has consisted of a "Program of Projects." Metro is currently managing a large portfolio of projects valued at $12 billion with annual expenditures in the range of $1.5 billion. This represents one of the largest capital programs in the country. Measure M would increase this significantly.

The large size and number of projects significantly increases the complexity and challenges facing program and project management compared to a smaller program with only one large project – as is typically done.

Figure 6: Capital Project Lifecycle Phases



3.4.2 Summary of Program Management Approaches

Metro utilizes a number of program management approaches – summarized in the sections below – to manage such the type of Measure M program Metro is going to undertake. These include organizational approaches, integrated project management offices, partnering, Annual Program Evaluation (APE), strong program controls, project delivery methods, project readiness procedures, lessons learned and the appropriate use of consultants.

In such a large program, it is important that comprehensive and consistent processes and structures be in place. However, it is also important to be flexible to account for unique factors and variability in each project. The Program management Planwill be always evolving in response to best practices, lessons learned and organizational changes.

3.4.2.1 Organizational Approaches

At the start of the project, a detailed staffing plan is developed under the direction of the Project Director/Manager. This staffing plan details each position in each discipline needed throughout the life of the project. The positions are evaluated to determine the positions that are best suited as Metro employees and those for consultants.

The staffing plans are coordinated and incorporate the requirements of other departments at Metro, which provide support to the project. They are also reviewed and approved by the Chief Program Management Officer and Deputy Chief Program Management Officer who assure that they are consistent with the overall organizational needs and resources of the department. The staffing

plans are also built into project and annual budgets and provided to the Human Resources Department to assist in their own resource planning. Consultant needs are coordinated with the Vendor/Contract Management Department to assure that the procurement of necessary contracts is completed within the project schedule.

A critical element of success of any project is to hire and retain the best people. The projects are so large and complex, that the people working on them are required to make significant decisions that can have far ranging technical, financial or community impacts. Therefore, it is important to have the right employees throughout the project organization with the experience and skill sets to make these decisions.

The key position in any project is the Project Director/Manager. The Project Director/Manager is the focal point for all project aspects. They provide day-to-day direction to the project team members, coordinate major issues with senior management in the Program Management Department and serve as the single, formal point of contact with contractors.

The Project Director/Manager has overall responsibility and accountability for the project. Therefore, it is important that adequate authority and support is provided to the Project Director/Manager.

Selection of the Project Director/Manager is a critical step that should occur at the start of a project. The Project Director/Manager must exhibit good leadership skills, have strong technical experience, communicate well, be a good decision-maker and capable of negotiating complex contractual and third party agreements. To the extent possible, the Project Director/Manager is selected and assigned while project planning is still ongoing. This is critical so the Project Director/Manager can provide input to the planning process and to be aware of the project requirements developed during the environmental/planning phase.

On most large projects a matrix organization is employed. Everyone on the project takes direction from the Project Director/Manager. However, they may also have a functional reporting line to other parts of the Metro organization. Everyone on the project team works to achieve the project goals regardless of organizational reporting relationships.

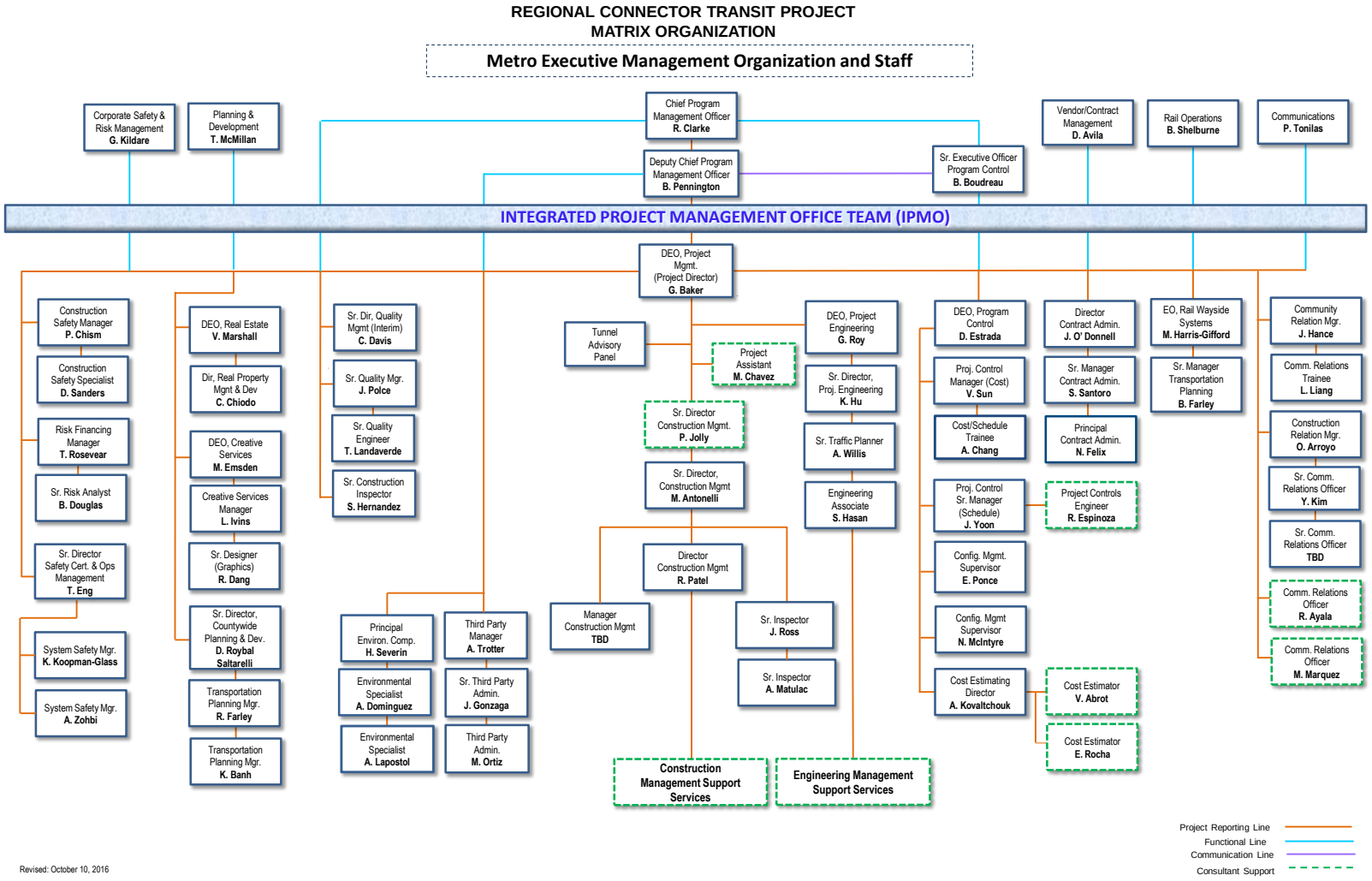
3.4.2.2 Integrated Project Management Office (IPMO)

For large projects, Metro utilizes the Integrated Project Management Office (IPMO) during the project lifecycle. All key project personnel, including the Project Director/Manager, work in the IPMO. The IPMO is located in the field along the construction project. It enables project personnel to be co-located with the contractor and in the community where the project is being performed.

This structure facilitates the speed and quality of decision-making. It reflects a decentralization of and delegation of management to the appropriate level of the organization, while still maintaining processes that assure consistency with standards and proper oversight of the project from Metro headquarters.

There are numerous advantages to this management concept. These advantages include reduced management costs through the elimination of redundant positions and streamlined communications between Metro and consultant staff. One of the goals of the project management structure is to eliminate re-work of technical submittals and ensure the development of a consistent quality design submittal. The Regional Connector Project organization chart shown in Figure 7 is an example of this structure.

Figure 7: Integrated Project Management Office


REGIONAL CONNECTOR TRANSIT PROJECT
MATRIX ORGANIZATION
Metro Executive Management Organization and Staff
Corporate Safety & Risk Management G. Kildare
Planning & Development T. McMillan
Chief Program Management Officer R. Clarke
Deputy Chief Program Management Officer B. Pennington
Sr. Executive Officer Program Control B. Boudreau
Vendor/Contract Management D. Avila
Rail Operations B. Shelburne
Communications P. Tonilas
INTEGRATED PROJECT MANAGEMENT OFFICE TEAM (IPMO)
DEO, Project Mgmt. (Project Director) G. Baker
Construction Safety Manager P. Chism
Construction Safety Specialist D. Sanders
Risk Financing Manager T. Rosevear
Sr. Risk Analyst B. Douglas
Sr. Director Safety Cert. & Ops Management T. Eng
System Safety Mgr. K. Koopman-Glass
System Safety Mgr. A. Zohbi
DEO, Real Estate V. Marshall
Dir, Real Property Mgnt & Dev C. Chiodo
DEO, Creative Services M. Emsden
Creative Services Manager L. Ivins
Sr. Designer (Graphics) R. Dang
Sr. Director, Countywide Planning & Dev. D. Roybal Saltarelli
Transportation Planning Mgr. R. Farley
Transportation Planning Mgr. K. Banh
Sr. Dir, Quality Mgmt (Interim) C. Davis
Sr. Quality Mgr. J. Polce
Sr. Quality Engineer T. Landaverde
Sr. Construction Inspector S. Hernandez
Principal Environ. Comp. H. Severin
Environmental Specialist A. Dominguez
Environmental Specialist A. Lapostol
Third Party Manager A. Trotter
Sr. Third Party Admin. J. Gonzaga
Third Party Admin. M. Ortiz
Tunnel Advisory Panel
Project Assistant M. Chavez
DEO, Project Engineering G. Roy
Sr. Director, Proj. Engineering K. Hu
Sr. Traffic Planner A. Willis
Engineering Associate S. Hasan
Sr. Director Construction Mgmt. P. Jolly
Sr. Director, Construction Mgmt M. Antonelli
Director Construction Mgmt R. Patel
Manager Construction Mgmt TBD
Sr. Inspector J. Ross
Sr. Inspector A. Matulac
Construction Management Support Services
Engineering Management Support Services
DEO, Program Control D. Estrada
Proj. Control Manager (Cost) V. Sun
Cost/Schedule Trainee A. Chang
Proj. Control Sr. Manager (Schedule) J. Yoon
Config. Mgmt. Supervisor E. Ponce
Config. Mgmt Supervisor N. McIntyre
Cost Estimating Director A. Kovaltchouk
Director Contract Admin. J. O' Donnell
Sr. Manager Contract Admin. S. Santoro
Principal Contract Admin. N. Felix
Project Controls Engineer R. Espinoza
Cost Estimator V. Abrot
Cost Estimator E. Rocha
EO, Rail Wayside Systems M. Harris-Gifford
Sr. Manager Transportation Planning B. Farley
Community Relation Mgr. J. Hance
Comm. Relations Trainee L. Liang
Construction Relation Mgr. O. Arroyo
Sr. Comm. Relations Officer Y. Kim
Sr. Comm. Relations Officer TBD
Comm. Relations Officer R. Ayala
Comm. Relations Officer M. Marquez
Project Reporting Line
Functional Line
Communication Line
Consultant Support
Revised: October 10, 2016

A key element of the IPMO is to ensure that Metro staff is co-located with consultant staff in a single office. This office will include all the disciplines necessary to direct the day-to-day activities of the project (engineering, construction management, cost and schedule, configuration management, communications, environmental, third party coordination, etc.). The core functions located in the IPMO are:

- Project Engineering staff managing the project's design and engineering support activities during construction. Design consultants will provide supplemental staff resources within the IPMO.
- Project Construction staff directing and managing all aspects of construction including constructability reviews, safety and quality. Construction management consultants will also provide supplemental staff resources within the IPMO.
- Program Control staff are responsible for detailed planning, establishing project cost and schedule baselines, performance measurement thereof, controlling of schedule and costs and management reporting over the life of the project. Program Control staff also provide configuration management and cost estimating support.
- Quality Management staff is responsible for establishing and directing the Quality Management Plan, which includes evaluating the quality effectiveness of the procurement of material, equipment and services, and the design and construction of facilities and systems.
- Vendor/Contract Management staff is responsible for contractual issues with contractors including all change orders.
- Environmental Compliance and Sustainability Section staff is responsible for ensuring that the environmental commitments and regulatory compliance of the project are adhered to during the design and construction process. ECS staff also provides support in parcel acquisitions, design review, and third party interface to reduce the project's environmental liabilities. ECS staff also provides sustainability services oversight specifically ensuring that Metro's compliance to sustainability policies, principles, and commitments outlined in the project specific Sustainability Plan is executed. ECS Section staff provides project-commissioning support to ensure that sustainability elements in the infrastructure meet post-construction regulatory, statutory, and operations and maintenance requirements.
- Construction Safety staff develops construction Worksite Safety and Security Requirements in the form of Technical Specifications and the Construction Safety & Security Manual, that are issued with contract documents. These requirements identify the minimum standards, which the construction contractor(s) working on the Regional Connector Project will comply with for safe practices and standards as set forth in applicable local, state and federal codes, orders and regulations and the contract. The contract document establishes compliance requirements to be followed by all contractors to protect employees, the public, facilities and property during construction.
- Communications is the lead for management of public outreach, stakeholder communications, impact mitigation and the complexity of issues that can come up during construction; and implements a construction safety education and outreach program to raise awareness of active construction. Working with the project management team, this team functions as the lead for liaison with the community, elected officials and the media through identification and integration of internal and external resources, the communications team manages the mitigation of construction impacts to the public through the implementation of

measures and programs that foster good will and credibility for the agency and the project as well as fulfilling legal environmental requirements.

- Countywide Planning and Development staff provides technical support to the engineering and construction team to assist in the implementation of the planning elements of each project. Planning staff is the lead on the community linkages studies and multi-modal interface tasks. In addition, in the event that changes to the project are introduced during the implementation phase that will have environmental impact, Planning will lead the appropriate environmental clearance process.
- Art and Design staff will work with Project staff and consultants on the provision of signage and wayfinding programs and oversee the incorporation of public art into the project.

The core Project Team members are responsible for coordinating, facilitating, and expediting project management work requirements in their respective areas of expertise, as well as for coordinating resources within the functional departments and consultants to ensure project goals are met. Project Team members, including consultants, report and respond to the Project Management (Project Director) for all project oriented tasks and assignments. The Project Director reports to the Deputy Chief Program Management Officer. The Deputy Directors of Project Engineering and Construction Management are hired directly by the Project Director. All IPMO staff assigned from the Program Management Department work at the direction of the Project Director. All remaining Metro staff is assigned from functional departments on a matrix basis.

Rescheduling of project activities and revised scope requirements necessitate a flexible staffing approach that allows both expansion and contraction of project personnel assignments. The Metro matrix organization fulfills this requirement. Consultant staff resources from the Metro's Engineering Consultants, Construction Management Support Services Consultants (CMSS), and specialty consultants such as Environmental Consultants and Project Management Assistance (PMA) Consultants have currently been utilized to supplement Metro resources as required within the IPMO. Project and functional managers will continually assess and assign staff to meet varying project requirements that differ from project fiscal year budget plans, which are formalized as much as 12 months earlier.

The project work scope is such that the day-to-day "hands on" technical and construction management is the responsibility of the Project Director/Manager, who manages Metro staff and consultants that oversee the work.

3.4.2.3 Tunnel Advisory Panel

The Tunnel Advisory Panel (TAP) was convened by the Metro Board in August 1995, initially, to assess the feasibility of tunneling in Los Angeles Ground conditions. The TAP members are nationally and internationally recognized professionals with expertise including, but not limited to, state of the art tunneling and deep excavation methods and techniques, geotechnical and seismic issues, construction contracts, design issues, risk identification and allocation, temporary and permanent works, settlement and the behavior of infrastructure subject to ground movement. TAP members have access to all technical work under development by Metro and our consultants and contractors, from the environmental phase, through design, development of procurement documents and construction. TAP members have a dual role, providing independent and ongoing strategic oversight of key technical issues while providing expert advice to the project teams on specific issues, as requested by staff from time to time. While they work closely with the project

teams and key technical and managerial staff, TAP members have the ability to report to the highest levels of Metro should they so choose as part of their independent role. TAP members participate with Metro staff in Lessons Learned activities and provide input and advice on necessary updates to Metro's core technical documents – design criteria etc. This input is based on Lessons Learned from metro projects but also from a State of the Art perspective based on involvement in contemporary national and international projects and professional organizational affiliations and involvement. From time to time, TAP members will provide input to the Metro Board, at the request of the Board, on technical issues related to key stakeholders and third party structures proximate to Metro projects.

3.4.2.4 Partnering

Partnering is a process where all parties working on a project, especially Metro and the contractors, agree to work collaboratively in the best interests of the project and define a process for expeditiously addressing issues that can affect the project budget and schedule. Metro incorporates partnering as an important tool in the management of its projects.

Formal partnering is utilized for all large projects. This includes the use of a partnering facilitator, issue tracking, surveys of team members and escalation ladders. Both parties share in the cost of partnering and mutually select the partnering facilitator. In certain projects, third parties may be bought into the formal partnering process. Although formal partnering may not be applied for smaller projects, partnering principles are applied in the management of the project. The Chief Program Management Officer in coordination with the Project Director/Manager will determine the projects requiring formal partnering.

Partnering is provided high-level executive support at Metro. Larger projects apply executive partnering sessions, which may include participation by the Chief Executive Officer, the Chief and Deputy Chief Program Management Officers and high-level executives from the contractor companies. An escalation ladder specifies the names of individuals at each level of the escalation process.

Partnering encourages issues to be resolved at the lowest level possible where the most detailed information about an issue is available. However, if an issue cannot be resolved at any level, it should be escalated before it starts to affect the performance of the project, particularly the project schedule. Once an issue is escalated, all project participants must support the decision that is made.

If a resolution is not achieved through the partnering process, the issue will be taken to a dispute resolution process as defined in the contract. This may include Dispute Review Boards (DRB), mediation, arbitration or other means specified in the contract. The goal is to avoid protracted disputes and resolve issues through partnering due to the time, cost and effort to take an issue through the dispute process.

In addition to partnering with contractors, partnering is also employed with key stakeholders such as City of Los Angeles. In some cases, all three parties (Metro, City, and Contractor) participate in partnering session.

3.4.2.5 Annual Program Evaluation (APE)

The Annual Program Evaluation (APE) initiative is a comprehensive evaluation of Metro's Capital Program, including Transit, Highway, and Regional Rail projects. Given the challenges of managing

a multi-billion dollar capital program, a comprehensive review of the risks associated with the cost and schedules of the program is done on an annual basis.

As part of the APE process, staff review and update project costs and schedule to current conditions and challenges. Any changes to project budgets/schedules and the reasons for the adjustments are to be reported to the Board annually for approval. In addition, APE serves as a project management tool bringing greater consistency, transparency, and discipline in project directors/managers to better manage and deliver Board-approved projects. The APE is a dynamic tool, which is updated annually as projects move towards completion and any changes approved by the Board are incorporated.

The first APE review was completed by Program Management in August 2016 and focused on new and carry-over projects to FY2017 with project cost estimated at least $5 million or greater. Program Management evaluated sixty-one projects, including 29 Transit projects, 25 Highway projects, and 7 Regional Rail projects, which total approximately $12 billion. Since many of Metro Transit projects are in construction or near completion, the major focus is on managing the projects within the Board-approved life-of-project (LOP) budgets and schedules established for these projects. It is the responsibility of Program Management to lead and complete the APE review every year.

3.4.2.6 Project Delivery Methods

It is important that the appropriate project delivery method be applied to each project. To date, Metro has utilized either design-bid-build (DBB) or design-build (DB).

Design-bid-build (D/B/B) - Is a traditional method where drawings and specifications are taken to the 100% level. They are incorporated into a bid package that is generally awarded on a low bid basis. DBB works best when the following conditions exist:

- Metro requires full control of the design;
- There are many unknown risks that can best be addressed during design;
- Heavy involvement by third party stakeholders;
- Schedule is not a priority;
- Metro is comfortable in taking on the risk of design errors.

Design-Build (D/B) - is where the contractor performs both design and construction in an integrated manner. This eliminates a step between design and construction. In addition, some design and construction activities can overlap enabling the project to be completed much faster. Design-build contracts are generally awarded on a best value basis where both technical factors and cost are considered.

Design-build contracts may be issued with a 30% preliminary design. These design documents are incorporated into the contract as reference documents, which cannot be relied upon as to accuracy or design. However, Metro has found it advantageous to advance design to a higher level in many projects, in order to address specific risks.

Some of the advantages of design-build can be:

- Faster delivery schedules (which can also lower cost);
- Opportunities for innovation from the private sector;
- Risk sharing including assigning the risk of design to the contractor.

Each method is evaluated on a project-by-project basis. Currently, the Project Director/Manager evaluates the risk profile for a project and the pros and cons of each delivery method to make a recommendation to the Chief Program Management Officer and the Deputy Chief Program Management Officer. In addition, a consultant has been hired to develop a Project Delivery Method selection procedure. The delivery strategy is selected early in the project lifecycle.

There are other project delivery methods such as Construction Manager General Contractor (CMGC) and various Public-Private-Partnership (P3) models such as design-build-finance-operate-maintain (DBFOM). Currently, Metro does not have legislative authorization for CMGC, but may decide to pursue this in the future.

Design/Build/Operate/Maintain (D/B/O/M) - Is an expansion of D/B to also give the D/B contractor responsibility for Operations and Maintenance (O&M) of the completed transit capital project for a period that can vary between 5 and 30 years. There are two distinctive elements of D/B/O/M; the first is that the requirement to maintain the system should incentivize the D/B/O/M contractor to have particular emphasis on both quality and life cycle costs; the second is that in addition to design and construction performance requirements, it is also necessary to develop O&M performance requirements.

Concession or D/B/O/M/Finance (DBOM/F) - Builds on the D/B/O/M approach outlined above and expands the private sector responsibility to cover project financing responsibilities, possibly including the implementation of joint development. Concession contracts are also referred to as Public/Private Partnerships or P3. The Metro Office of Extraordinary Innovation takes the lead on P3 procurements with strong support from Program Management. P3s offer the opportunity for further risk sharing and financial support that may enable projects to be started sooner.

Construction Manager at Risk (CMR) or Construction Manager/General Contractor (CM/GC) Under this approach, Metro could retain full control of the design but also engage the construction contractor early in the process to address elements such as constructability reviews, cost estimating and scheduling. When an acceptable level of engineering is achieved, the parties negotiate the price and commence construction. Metro would choose both the designer and contractor based on qualifications and, during the initial phase, the contractor is paid for its work on a professional services basis. The second phase of the contractor's services is negotiated lump sum or guaranteed maximum price with incentives for savings after the final design is complete. Alternately, the CM/GC could manage the contract for a fee, controlling general conditions and holding the construction contracts in expectation of direct reimbursement from the owner. The contractor assumes responsibility for the entire construction package with a dual role as construction manager for all project work and general contractor.

Metro has engaged a consultant to develop a project delivery method selection procedure. This procedure will comprehensively evaluate each project along with the specific risks associated with

that project. This information will be used to select the most applicable delivery method. Documentation and the required approval process will be defined in the procedure.

3.4.2.7 Project Readiness

The Program Management Department assures that the key elements of a project are in place before starting and particularly before awarding contracts. The key elements of a readiness "checklist" may include:

- Planning documents and process complete;
- ROD issued by appropriate Federal Agency
- Key staff including the Project Director/Manager hired;
- Staffing plans and strategies in place;
- Third party agreements completed;
- Utility agreements completed;
- Environmental and sustainability-related commitments and permitting requirements identified;
- Project Management Plan developed;
- Required consultant support contracts procured;
- Real estate acquisition schedule developed and key acquisitions complete;
- Any advanced utility relocations.

A consultant has been hired to develop a comprehensive readiness procedure for the Program Management Department.

3.4.2.8 Lessons Learned

Lessons learned are critical in any organization that strives for continuous improvement. Lessons learned assure that best practices are incorporated as an ongoing way of doing business and that negative outcomes are understood and not repeated. Lessons learned must be adequately documented and disseminated throughout the organization in order to be effective.

In March 2016, the Metro Office of Inspector General issued a Construction Best Practices report that identified a number of recommendations. The Program Management Department accepted most of these recommendations and is in the process of procuring a consultant to assist in the implementation of these recommendations.

One of the tasks is to develop a Lessons Learned Report to document critical lessons from the past few years. An ongoing lesson learned program to be administered by the Quality Assurance group will also be developed.

3.4.3 Program Management Finance and Administration

The Program Management Finance and Administration function is responsible for oversight, developing, implementing, and administering the operating and capital budgets, as well as the administrative responsibilities and financial management for all Program Management departments. Other responsibilities include administration of the labor management, cash flow projections, human resource allocations/recruitments, computer information technology, program wide Key Performance Indicators, audit liaison and assisting with the Board Report process to deliver efficient and cost effective services to the user community in support of Metro's projects.

Program Management Finance and Administration functions are as follows:

- Annual Budget Development and Financial Monitoring
    - Provide program wide financial oversight, strategic direction and management for Program Management Departments.
    - Establish budget goals and objectives for departments.
    - Ensure budget preparation is done correctly and all issues have been addressed.
    - Manage and oversee the analysis and financial forecasts to ensure compliance with budget and goals.
    - Review monthly/quarterly variance analysis and resolve issues pertaining to them.
    - Identify funding issues and work with departments to resolve them.
    - Oversee, develop, monitor and report on departmental wide Key Performance Indicators (KPIs).
- Administrative Responsibilities
    - Provide administrative strategic directions to the Program Management department.
    - Oversee departmental wide financial management matters (invoices, check requests, space allocations, encumbrances close outs, Work Breakdown Structure (WBS), budget transfers & amendments, journal vouchers between projects, project close-out notices).
    - Oversee departmental wide staff recruitments, human resource matters and ensure vacancies are filled in a timely manner.

- Oversee and attest requisitions are being entered into Metro Applicant Tracking System (MATS).
- Evaluate adequacy of job descriptions and monitor progress of Job Bulletins postings.
- Request and evaluate salary matrix and proposals.
- Procure software licenses and facilitate departmental IT (Information Technology) systems needs.

- Board Reports
  - Facilitate review of Board Reports including Financial Impact for accuracy and completeness.
  - Coordinate with departments to ensure reports are submitted to the CEO's Office on time as requested.

- Labor Information Management
  - Oversee labor charges and ensure Full Time Equivalent (FTE) personnel are charging the appropriate projects; transfer incorrect hours.
  - Produce monthly reports regarding project labor distribution.
  - Research status for preparation of Budget Variance Analysis.

- Fund Source Status Report
  - Prepare program wide financial updates for Project Monthly Status Reporting.
  - Send out requests for publication related to Metro public meeting notices, availability of draft/final documents, schedule changes, and other public announcements.

3.4.4 Program Control

3.4.4.1 Overview

Program Control functionally reports to the Chief Program Management Officer to assist in managing scope, project status, budgets, schedules, estimates, document control, change control, risk management and reporting. Program Control serves as the central point of coordination across departments to ensure projects are delivered within cost, schedule, and risk expectations.

Program controls support is also provided for activities including program reporting, enterprise standards and tool development, project management training and process improvements. Staff support is provided for the environmental planning and preliminary engineering, final design

engineering and construction, and maintenance/operations phases of transit, regional rail, highway, and capital improvement projects.

3.4.4.2 Purpose

The purpose of Program Control is to ensure management is continually informed about the project's performance regarding cost, schedule, risk, management issues, and objectives. Meeting the goals and objectives requires that: (a) achievable project cost and schedule baselines are established; (b) actual progress can be measured against the project baseline; and (c) when necessary, corrective measures are taken against variances to the baseline. In order for program control to be effective, the project must include measurable objectives, appropriate performance measurement guidelines for status as well as the ability to assess requirements in such a way as to allow for timely and effective decision-making.

Program/Project Controls is responsible for monitoring and reporting the following elements:

- Program Control
    - Program Control Standards and Policies
    - Enterprise Management Systems and Reporting
    - Project Management Training
    - Process Improvements
- Scope Control
    - Work Breakdown Structure (WBS) for Scope identification
- Budget Controls
    - Life of Project Budget and Budget Changes
    - Fiscal Year Budget and Variance Reporting
- Cost Controls
    - Cost Breakdown Structure (CBS)
    - Cost Forecast and Estimate to Complete
    - Contingency Management
    - Cost Reporting
    - Invoice Review
    - Project Cash Flow

- Schedule Controls
    - Enterprise Project Structure (EPS)
    - Summary and Control Schedules
    - Contractor Baseline Schedule and Updates Review/Approval
    - Time Impact Analysis
    - Physical Performance Assessment
    - Earned Value Reporting (where applicable)
    - Schedule Reporting
- Cost Estimating
    - Lifecycle Cost Estimating
    - Independent Cost Estimates
- Configuration Management
    - Functions
    - Configuration Management Plan
    - Policies and Procedures
    - Electronic Document Exchange
- Risk Controls
    - Risk Register and Reporting
    - Risk Assessments & Tracking
- Project Control Procedures

3.4.4.3 Key Elements

3.4.4.3.1 Program Control

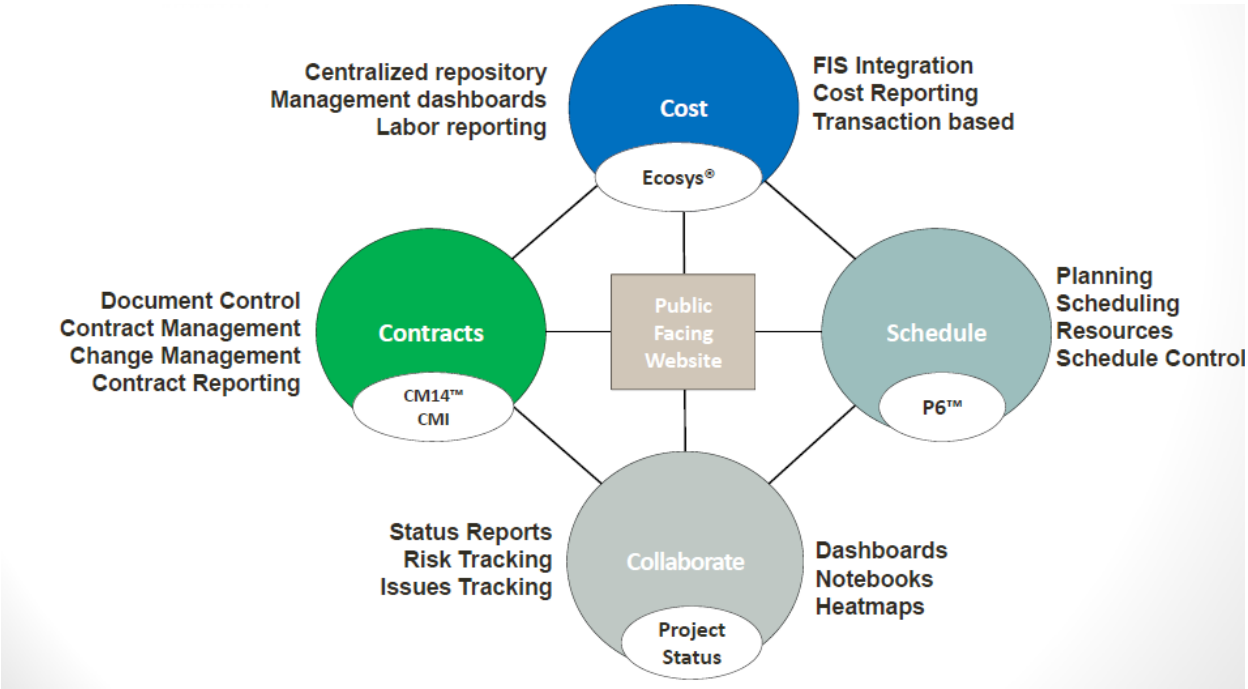
Program control standards

Common standards are established across each transportation mode to enable consolidated analysis and reporting. Standards are required for enterprise reporting purposes to support portfolio management.

Enterprise Management Systems and Reporting

Metro deployed a Program Management Information System (PMIS) to facilitate program-wide project tracking, administration and management reporting. PMIS was implemented to maximize efficiencies through automation, standardization, and provide program performance transparency. The system utilizes the latest version of Oracle® Primavera software that has been configured to support the program-wide reporting requirements. Software applications include Oracle® Primavera P6™ Professional, Project Status, Oracle Primavera Contract Management (CM14), Microsoft® SharePoint® 2016, and EcoSys® EPC. All applications are integrated to the organizational financial system in Oracle® E-Business Suite. The system architecture is shown in Figure 8.

Figure 8: Program Management Information System Architecture



The Oracle Primavera P6 Professional application serves as the primary application for planning, scheduling and resource management. Project Status serves a central role in supporting summary level reporting and facilitating communication. Key aspects of this application include portfolio level dashboards, executive scorecards, and risk and issue tracking. The Oracle CM14 application manages contract deliverables for major contracts and provides document management and

change control capabilities. Contract reporting capabilities are available for document logs and include trend, cost, and variance reporting. The SharePoint application serves as the configuration management internal repository for all CM14 documents. Additionally, SharePoint contains an external repository where configuration controlled documents are managed related to corporate procedures, design criteria standards, standard specifications, and design variance requests. The EcoSys EPC application is the centralized cost repository that is automated to all other systems for financial data integration. The EcoSys EPC application is utilized for all cost reporting for budget, actuals, forecast, and labor reporting. Project scope and status data is integrated from P6 and EcoSys and published monthly to a public facing dashboard at www.metro.net on a monthly basis. For more information and monthly status updates refer to https://mtadash.mlmprojectservices.com/

Project Management Training

A two day project management training program is available through Talent Development that reviews project management best practices in accordance with Metro procedures. The course contains tailored content for each major capital project type and/or business unit. The course highlights key facts related to project funding, planning, monitoring and control, project control systems, ethics, working with the Board of Directors, quality management, accounting, risk management, community relations, and estimating. All capital project directors/managers are required to complete the course.

Process Improvements

Program management performs project management with a business culture seeking continual improvement. Peer reviews are sometimes utilized as basis for potential process improvements. Lessons learned are shared with staff to support both incremental improvement over time and breakthrough improvement at once where occasion arises and management deems necessary.

3.4.4.3.2 Scope Control

Work Breakdown Structure (WBS) for Scope identification

The Work Breakdown Structure (WBS) has been developed as the basis for integration of all aspects of the project control system including estimating, scheduling, cost control, and progress reporting. The WBS approach ensures uniformity and prudent project planning and control. The breakdown is project and work scope oriented to deliverable end project items as it relates to cost management and project schedule. The WBS is made up of tangible and discrete items that aid the effective management of the scope, time, cost, and progress of the project. A sample transit work breakdown structure is reflected below and in more detail in Table 2.

- Level 1 - Project

  P Metro Regional Connector Transit Corridor Project

- Level 2 - Element

  C Construction

  S Special Conditions

  R Right-of-Way

V Vehicles

P Professional Services

PC Project Contingency

PR Project Revenue

PF Project Finance

- Level 3 - Line Item
- Level 4 - Work Package

Applicable Configuration Management Policies and Procedures will apply when changes are made to the WBS.

Table 2: Sample Transit Work Breakdown Structure

METRO REGIONAL CONNECTOR TRANSIT CORRIDOR PROJECT
PMP WBS TABLE (As of January 2016)

WBS Description	Level 1	Level 2	Level 3	Level 4	Current Budget ($ In millions)
METRO REGIONAL CONNECTOR PROJECT	**P**				
CONSTRUCTION		**C**			**545.7**
GUIDEWAYS			**10**		**240.4**
TUNNELING					**240.4**
GUIDEWAY: UNDERGROUND CUT & COVER				C0980	84.2
GUIDEWAY: UNDERGROUND TUNNEL				C0980	131.8
GUIDEWAY: RETAINED CUT & COVER				C0980	3.2
TRACK: DIRECT FIXATION				C0980	8.8
TRACK: EMBEDDED				C0980	0.2
TRACK: BALLASTED				C0980	0.4
TRACK: SPECIAL (SWITCHES, TURNOUTS)				C0980	6.4
TRACK: VIBRATION AND NOISE DAMPENING				C0980	5.3
STATIONS			**20**		**230.4**
STRUCTURAL STATION BOX EXCAVATION & STATION FINISHES					**208.9**
UNDERGROUND STATIONS				C0980	208.9
OTHER STATIONS (MISCELLANEOUS)					**21.6**
ELEVATORS, ESCALATORS				C0980	21.6
SUPPORT FACILITIES			**30**		**0.0**
YARDS, SHOPS, ADMINISTRATION BUILDINGS				N/A	0.0
SYSTEMS / EQUIPMENT			**50**		**74.9**
TRAIN CONTROL AND SIGNALS				C0980	17.5
TRACTION POWER SUPPLY: SUBSTATIONS				C0980	14.2
TRACTION POWER DISTRIBUTION: CATENARY AND THIRD RAIL				C0980	7.5
COMMUNICATIONS				C0980	25.1
UNIVERSAL FARE SYSTEM				MULTI	8.3
CENTRAL CONTROL				MULTI	2.4

3.4.4.3.3 Budget Controls

Life of Project Budget and Budget Changes

A life of project budget (LOP) serves as a baseline budget that is established once projects have completed appropriate levels of engineering or when construction bids haven been received and approved by the Metro Board. The LOP is time phased for the duration of the project lifecycle and aggregates the resources required to perform the work and necessary funding sources. The LOP includes all project estimated costs both direct, indirect and associated contingencies.

Any potential changes to the LOP are maintained by a formal change control process. Changes to the original project scope of work that result in changes to the life of project budget must also be approved by the Metro Board.

3.4.4.3.4 Cost Controls

Cost Breakdown Structure

The Cost Breakdown Structure (CBS) is the breakdown of a Work Breakdown Structure (WBS) element into unit cost or lump-sum cost components, such as labor, materials, equipment, and subcontract/services. The CBS hierarchy aligns with the WBS work scope oriented to deliverable end project items.

Cost Forecast and Estimate to Complete

Costs are regularly evaluated as means to monitor budgets, commitments, forecasts, and expenditures for both projects and programs. Costs are tracked proactively by both the work breakdown and cost breakdown structures. Costs are monitored for potential threats and variances are evaluated for potential mitigation strategies. Trend analysis is performed for early detection of potential cost overruns, schedule slippages, and project risks.

Invoice Review

Invoice review is the process where Metro verifies the contracted party's invoice submission for a period of performance against an approved schedule of values or project schedule for work earned/in-place.

All invoices are accompanied by the required schedule/project reports for performance measurement/project status as defined in the Contract Terms and Conditions. All consultants and contractor invoices are processed in accordance with Metro standard invoice requirements established by Metro accounting and in accordance with the Contract Terms and Conditions.

Cost Reporting

Cost reports are regularly prepared on a monthly basis at a minimum and tailored to multiple audience needs. Costs are monitored based upon the work breakdown structure and reviewed for budget, commitment, forecast and expenditure analysis. Costs are reviewed against budget and commitment baselines for variance analysis. Variances and trends are evaluated against contingencies and mitigation strategies developed where applicable.

3.4.4.3.5 Schedule Controls

Enterprise Reporting Project Structure

The Enterprise Project Structure (EPS) is a hierarchical structure of projects in the Oracle Primavera P6 database. Program Control utilizes the EPS as a means to organize schedules by transportation mode and segregate baseline schedules from working schedules and contractor schedules.

Schedule Control Levels

Summary and Control Schedules are developed in accordance with policy and procedure "Schedule Development and Control" (PC09). This includes but is not limited to:

Level 1 – Summary Schedule

Provides the highest level of summarization

Level 2 – Control Schedule

Provides sufficient detail for monitoring and control of schedule management

Level 3 – Contractor Schedule

Provides the greatest level of detail necessary to control/monitor/deliver project scope

Contractor Baseline Schedule Review and Approval and Schedule Updates

Contractor Baseline schedules are submitted in accordance with Contract Specifications and in an acceptable Metro format for review. Metro reviews/approves and/or rejects baseline schedule submittals.

Upon receipt of a Contractor Baseline schedule, Metro performs the following:

- Distribute appropriate schedules/layouts to project disciplines for review/comment/approval.
- Review software analytics for analysis (i.e. logic, constraints, open-ends, float suppression, etc.) of the schedule submittal.
- Analyze critical paths for validity.
- Consolidate comments responses from all disciplines/areas of concern using the standard Metro schedule comment form.
- Ensure conformance to Contract Specifications and/or the Schedule Template Guideline (where applicable).

Upon final approval of contractor baseline schedules, the Program Master Baseline schedule will be updated incorporating data from contractor baseline schedules. This will serve as the basis of performance measurement for the Program. The Program Master Baseline schedule will be reviewed/updated each fiscal year to reflect the latest project baseline adjustments (re-baselines, etc.).

Schedule Delay Analysis

Metro reviews potential schedule delays via contemporaneous forward looking analyses or Time Impact Analysis. Time-Impact Analyses shall be submitted in accordance within Contract Specifications.

Physical Performance Assessment

Physical progress measurement shall be performed of work for; design, construction, procurement, installation and testing contracts per Contract Specifications. On a monthly basis the percent complete for activities will be evaluated/updated using the appropriate measurement criteria established at baseline approval thereof.

Earned Value Reporting (where applicable)

Where applicable per Contract Terms and Conditions, earned value will be reported on a monthly basis against defined measurement criteria for cost loaded schedule activities and/or schedule of values.

Program/Project Cash Flow Plans

Program/Project cash flow plans are developed and maintained on a regular basis to determine long-term funding needs from federal, state, and local sources. This will ensure Metro meets current cash requirements to fund ongoing projects in accordance with Cash Flow Plans policy (PC08).

Cash flows are developed in accordance with the project Work Breakdown Structure (PC01) for each month of a project by allocating the estimated cost of completing an activity over the scheduled duration of the activity. Project conditions (i.e. expenditures, trends, etc.) are considered in adjustments made to cash flow projections and all cash flow plans shall have a direct relationship with corresponding project schedule of activities for accurate projections. If in the event no schedule exists per Schedule Development and Control policy (PC09) the project director/manager should make the best estimations using industry standards/best practices.

All project cash flows should roll-up to produce a master Program cash flow in accordance with the defined Program WBS.

Schedule Reporting

Schedule reports are regularly prepared on a monthly basis at a minimum and tailored to multiple audience needs. Program and project critical paths are evaluated and completion times reviewed for compliance. Schedule trends and potential delays are analyzed and reported for mitigation opportunities. Delays are evaluated against schedule contingencies in accordance with PC12.

3.4.4.3.6 Cost Estimating

Lifecycle Cost Estimating

Cost estimating is performed across the project lifecycle in conjunction with the proper application of the Financial Risk Management Plan and the Work Breakdown Structure (WBS) throughout the planning and construction phases to ensure the development and control of accurate budgets.

Operations and maintenance budgets are currently developed separately with close coordination between Program Management and Operations occur. This coordination is especially important when new technologies, process efficiencies, or new sustainability strategies are designed, constructed and implemented for a capital project.

Throughout the design process, estimating is responsible for documenting and informing the project team of any changes incorporated in the design documents that may affect the overall cost of the

project in accordance with PC05, "Cost Trending Procedure". As a minimum, an estimate submittal shall be required for each required at design stage review submittal. The following is a list of generally required design stage review submittals and their corresponding estimate submittals:

- Preliminary Estimate - based on 30% complete design submittal
- In-Progress Estimate - based on 60% complete design submittal
- Pre-Final Estimate - based on 85% complete design submittal
- Final Estimate - based on 100% complete design submittal
- Engineer's Estimate or Independent Cost Estimate based on Invitation for Bid (IFB) or RFP solicitation documents

Independent Cost Estimates

Independent cost estimates are prepared in accordance with Federal Acquisition Regulation Part 36.203(a) which states that "An independent Government estimate of construction costs shall be prepared and furnished to the contracting officer at the earliest practicable time for each proposed contract and for each contract modification. All cost estimates are to be kept confidential in accordance with Federal Acquisition Regulation Part 36.203(c), which states that access to information concerning cost estimates shall be limited to personnel whose official duties require knowledge of them. Additional cost estimates or special studies may be required at the discretion of the Metro's project team.

3.4.4.3.7 Configuration Management

Functions

The Configuration Management Manager oversees and manages the overall operation of Metro's Configuration Management Department, a matrixed team that facilitates document and change control functions across multiple major capital projects. These functions include - maintaining the official project records, managing electronic document exchange including facilitating Metro response, and administering contract changes.

In addition, Configuration Management functions institutionally by administering Metro Rail Design Criteria, Standards and Directives, departmental policies and procedures, and maintaining configuration management of document revisions. Configuration Management Manager co-chairs the Program-wide Change Control Board (PCCB) with the Executive Officer of Projects Engineering.

On behalf of Project Management, Configuration Management supports the contract change process for major capital projects, professional service contracts and environmental contracts in conjunction with Procurement Contract Administrators.

Configuration Management Plan

Metro has established and implemented a comprehensive Configuration Management Plan (Policy CF1 Configuration Management Plan) comprised of specific procedures designed to ensure the

following:

- Revision status of any document is clearly identified
- Status accountability of document is maintained throughout all program phases
- Changes to the current baseline are incorporated only after a thorough review cycle and approval by the appropriate authority
- All revisions of documents are distributed in a timely manner, to key field and management staff
- Revision history is provided to field and management staff
- Documents are properly maintained in an easily accessible, central location
- Program costs are minimized by ensuring that historical documents relating to changes, claims, and design history are readily retrievable
- Changes representing problem solutions are incorporated into future design
- Baseline status identification and change management are approached and implemented in a consistent manner on all Capital projects.

Policies and Procedures

Configuration Management Department has specific policies and procedures addressing the three major elements of configuration control; Document Control, Change Management and Correspondence Control.

Metro's Document Control Procedures provide policies, standards, and procedures related to the physical handling, identification, safe storage, and transfer of baseline documents throughout all project development phases. These procedures include:

CF2	Document Control: Baseline Documents
CF3	Document Control: Formatting and Identification Standards
CF4	Document Control: Contractor Submittals Processing
CF5	Document Control: As-Built Documents Processing
CF6	Document Control: Contract Close-out and Transfer of Records
CF16	Electronic Data Acceptance and Storage

Metro's Change Control Procedures provide policies, standards, and procedures related to baseline and contract change processing, documentation, approval, and incorporation. These procedures include:

CF7	Revision Control for Procedures
CF8	Change Control: Systemwide Baseline Documents
CF9	Change Control: Design Changes

CF10 Change Control: Consultant Contracts

CF14 Change Control: Construction/Procurement Contracts

CF15 Rail Operations Configuration Change Control

Correspondence Control Procedures provide standards to ensure that correspondence and documents related to the design and construction of rail projects are identified, filed and logged in a consistent manner. These procedures include:

CF12 Document Control: Metro Rail File Coding System

CF13 Document Control: Correspondence and Document Control

Electronic Document Exchange

Metro has deployed a Program Management Information System (PMIS) to facilitate project tracking, administration and management reporting. PMIS utilizes Oracle Primavera software that has been configured to support the program-wide reporting requirements of Metro; manage program and project administration, document control, cost and change management using Oracle Primavera Contract Management (CM14); manage scheduling using Oracle Primavera P6 scheduling format; and in some instances, project collaboration, document submittals and schedule updates may be done through Oracle Primavera P6 web or a web based custom data entry system.

Contractors working on capital projects prepare project documents, including but not limited to - Requests for Information (RFIs), Requests for Change (RFCs), submittals, change proposals, and other required contract deliverables. Documents are provided electronically to Metro in an Optical Character Recognition (OCR) searchable PDF format, and contain unique identifiers for easy retrieval.

Contractors are required to submit electronic files and data into CM14 utilizing a web-based Contract Management Interface (CMI). All documents submitted through CMI will automatically generate a confirmation receipt e-mail to contractor, as well as, Metro configuration management.

All CM14 and CMI users are provided a unique log in name and password along with instructions and training.

Configuration Management will upload approved baseline document revisions to Sharepoint and users will receive e-mail notification of location of revised document in the Document Control system. Users not having access to the Document Control system will be sent an electronic copy of the revised document.

Recipients are responsible for ensuring use of the latest document revision and that baseline document sets in their possession are updated on a regular basis.

3.4.4.3.8 Contingency Management

Cost and schedule contingency is managed at both the program and project levels. Contingency is an allowance to mitigate risks to the project or program. The amount of contingency is dependent on the complexity and uncertainties (risks) at each given phase and as defined in Project Contingency (PC12).

The application, management and control of contingency will be implemented throughout the entire life cycle of a project beginning with feasibility studies and continuing through environmental clearance, design, construction and final closeout. Contingency is determined through the Risk Management (PC07) process. Contingency logs and drawdowns for cost/schedule are maintained and reported on a monthly basis.

3.4.4.3.9 Risk Controls

Program and project risk management principles are utilized for all major capital projects being delivered by the Program Management Department. Program and project uncertainty for cost and schedule risks are managed using contingency.

Risk Register

A centrally maintained risk register is kept that tracks risk identifier, risk description, risk type, risk owner, risk strategy, risk timetable, risk cost and schedule impact, probability status, and mitigation strategies. Each project under construction maintains a detailed risk register that is updated monthly. Risk estimates are managed and offset against project contingencies as a means of budgetary and cost forecast control.

Risk Assessments and Tracking

Risk assessments are conducted with each project team. Each project team is responsible to review the adequacy of remaining contingencies against the risk register. The Federal Transit Administration (FTA) risk assessment guidelines prescribe detailed risk analysis workshops across project lifecycle and accompanying gate reviews are performed in conjunction with FTA managing personnel.

Table 3 illustrates Metro's Project Controls Governing Policies and Procedures.

Table 3: Project Controls Governing Policies and Procedures

Number	Title
PC01	Work Breakdown Structure
PC02	Project Budget
PC03	Cost Estimating
PC04	Project Management Plan
PC05	Project Cost Reporting and Cost Forecasting
PC06	Performance Measurement/Engineering Progress
PC07	Risk Management
PC08	Cash Flow Plans
PC09	Schedule Development and Control
PC10	Physical Progress Monitoring
PC11	Capital Program Projects
PC12	Project Contingency
PC13	PMIS Configuration Management

3.4.5 Engineering

3.4.5.1 Overview

Engineering is composed of high level engineering staff across all Engineering and Architectural fields needed for the design and construction of Metro rail systems including tunnel engineering, structural engineering, geotechnical engineering, civil and track work engineering, architectural, mechanical, electrical and plumbing (MEP) engineering and systems engineering. In addition, the Engineering group supports Metro's projects for their coordination with all Third Parties including the City of Los Angeles departments, mainly Bureau of Engineering (BOE) and Department of Transportation (DOT), but also Bureau of Sanitation (BOS), Bureau of Street Services (BSS), Bureau of Street Lighting (BSL) and Contract Administration (CONAD). Engineering also house the Quality Assurance/Quality Control (QA/ QC) Department, which provides Quality Management oversight to all Metro projects.

3.4.5.2 Responsibilities

The Engineering Department is responsible for the following activities:

- Program wide activities related to Metro Rail System Design Criteria and Standards
- Supporting major rail projects during the Preliminary Engineering (PE) development, before solicitation
- Review of the engineering work of the Design-Build (DB) contractors once the DB contract is awarded
- Supporting Capital Improvement Projects (CIP) and Regional Rail projects
- Assisting in State of Good Repair projects
- Third Party Administration
- Quality Management
- Permit of Developments Adjacent to Metro Facilities
- Buy America Compliance

3.4.5.2.1 Manage Metro Rail System Design Criteria and Standards

Metro Engineering is the keeper of Metro baseline documents that include Design Criteria, Standard Drawings, Directive Drawings and Baseline Specifications. The first two baseline documents Criteria and Standards are mandatory and are used as prescriptive requirements of all projects. They have been prepared, signed and sealed by Metro Engineers and are being maintained continuously to incorporate the Lessons Learned from past and current projects or to account for evolving technologies. The other two baseline documents, Directive Drawings and Baseline Specifications are tailored to the need of the project by the Final Designer of the project. These baseline documents are controlled and mainlined through a well-established system. A Systemwide Baseline Change Notice (SBCN) is required to make any modifications to these baseline documents and these changes are signed off by all Metro stakeholders and proposed for approval by the Executive Officer Engineering to the Chief Program Management Officer. Also if a project conditions do not allow the use of specific criteria or standards, the project may submit a Deviation Request (DR) for consideration by Metro Engineering.

3.4.5.2.2 Oversight of Metro Rail Projects PE Consultants and Solicitation Package Sign Off

Metro Engineering collaborates with the Metro rail project teams to develop the project design including preliminary engineering (PE) level for a Design-Build (DB) delivery or Final Design for a Design-Bid-Build (DBB) delivery. Submittals at various level of completion including PE, In Progress, Pre-Final, Final and Camera Ready are reviewed and commented on with final dispositions incorporated using the Design Review process. When the solicitation package is ready to be advertised, a Final review may be made by Metro Engineering.

3.4.5.2.3 Oversight of Contractors of Metro Rail Projects- Facilitation of the approval by the City (BOE) of the DB submittals

The Engineering Department currently reviews the Contractors Design Submittals for a DB job and shop drawings for a DBB job. The type and the level of review of submittals required are detailed in a contractual Contract Data Requirement List (CDRL) included in the contract. Based on this list, submittals with high importance level correlated to the integrity of Metro's structures or construction safety of the major structures such as underground structures, tunnels, stations, cut and cover areas and bridges require a full approval, while others are submitted for record only. Metro also seeks consultants and experts help as needed to perform the review process of some of the submittals such as noise and vibration and corrosion control or to enhance the efficiency where the internal resources are not sufficient to address all the projects need as it requires for geotechnical submittals. For large mega-projects, Engineering personnel may be assigned to the project in a matrix organization or the project may directly assign Engineering personnel or consultants.

3.4.5.2.4 Support Capital Improvement and Regional Rail projects

The Engineering Section supports the CIP and the Regional Rail projects on a selective basis. The Section develops the PE in house for the solicitation package or hires a consultant to develop the PE. The Engineering Department also supports projects by reviewing Consultant engineering and design submittals.

3.4.5.2.5 Third Party Administration

The implementation of Projects is dependent on successful and timely performance by outside parties, including governmental agencies, utility companies, railroad companies, and others. Collaboration with these parties ensures a smoother and amenable delivery of the Project. Hence, entity coordination through Metro's Third Party Department ("Administrator") is critical to the design, construction and operational success of the Projects. In summary, upon Project approval, inter-agency agreements are executed to assure successful completion of this project. The agreements developed with local agencies and utilities provide for planning, preliminary plan review, and construction coordination of the Project work within their jurisdictions. Below is a more detailed summary of each of the major critical Third Parties within the program that are coordinated with as well as some, but not limited to, respective critical elements that are led by the Administrator in order to construct a successful project.

Municipality and Utilities

The projects are being constructed within numerous municipalities and surrounded by numerous utility owners. Metro (Project Team and the Administrator) and each of the affected municipalities and utility owners coordinate the mitigation of physical impacts on existing transit, new Projects or highway facilities in order to maintain operations and safety and to meet legal regulatory and design standard requirements on new Projects. In an effort to centralize discussions and streamline process, each of the entities provides a project liaison to facilitate coordination of appraisals, permits, and needed expertise on construction of the Project.

Intergovernmental Agreements (IGA)

An IGA is a document that identifies the interests of all local municipality and utility stakeholders. Initial or draft versions of IGAs are developed and maintained by the Administrator or personnel associated with the specific corridor or project in order to identify roles and responsibilities from each

party to successfully design and construct each project. IGAs can address various phases of a project including Environmental and Planning, Final Design, Construction, and Maintenance and Operations.

The precise roles and responsibilities of the Project and the public and private agencies/organizations will be outlined in these IGA's. Via these agreements, Third Party staff, design consultant engineers, construction managers and affected entities will work together to develop an overall scope, budget and schedule for work to be performed on the Project in a timely manner. IGAs are drafted by the Administrator during the design phase of the project preferably by 65% design completion. Upon the draft being completed, the Draft Agreement is transmitted to Metro staff for review and comment. Metro's General Counsel is also closely involved in the development and negotiations of Agreements.

Prior to formal execution by either party, Metro General Counsel or their designee must sign approving it as to legal form. When an Agreement has reached final form, a Board report is prepared and authorization for the CEO to execute is requested. After General Counsel has approved the IGA as to legal format, the Administrator forwards two copies, at a minimum, of the Agreement to the other party or parties for execution. Once all parties other than Metro have executed the Agreement, the Administrator obtains Metro's signature from the CEO. The Administrator then transmits the fully executed Agreement to other party as well as Metro's Document Control and Project Controls, with a copy to approving Metro Counsel. From this point on an agreed upon reimbursement process has been identified.

Work Reimbursement Agreements with Municipalities and Utilities

IGA's provide the path for the reimbursement of costs incurred by municipalities, utility owners and facility owners for design rearrangement, reviews, permits, construction and inspection of facilities and modifications required for the development of the Project from Preliminary Design through Operations. Upon finalizing a Form 60, the Administrator shall assign a work order number to the task at hand. The work order number shall include a force account number to properly manage, track and administer the entity. The force account number shall be represented by a 4 character number (#FXXX) that identifies that entity within Metro's accounting system. Upon the assignment of the work order number the Administrators will complete the scope identification for specific tasks for each entity and issue the formal work orders. These specific work orders will authorize work and provide for reimbursement of actual costs for design and construction of facility rearrangements upon submittal of adequately documented invoices.

General Coordination with Municipalities and Associated Work

During the Preliminary Engineering and Environmental phase, the Design Consultant, the Administrator, section designers and outside entity representatives work together to develop detailed plans for facility modifications and/or rearrangements and integrate these proposals into the project plans. Agency representatives are included in the discussion of the Project scope and regular progress meetings are held to discuss and review progress and exchange technical data for all scope being affected by the Project. Matrixes are developed by the Administrator with entities to track issues, comment resolutions, betterments, permits, exemptions, variances, schedules, design standards, overall street improvement designs and submittals and resources. Affected scopes range from roadways and streets, street lights, trees, utilities, traffic signals, traffic patterns, etc. Third Party Administration staff are designated as the lead for the Project that coordinates with agency representatives throughout the design via the IGA's and will do so from the environmental stage of the project and on through operational start-up of the Project.

General Coordination with Utilities and Associated Work

A utility matrix is developed for tracking all utility facilities that may be impacted by the project. The Utility Matrix documents the existing condition for each utility (type, size, material, etc.) and the proposed action to resolve potential conflicts. The Utility Matrix also documents, for each utility, the existing property interest, cost responsibility for relocation, design and construction responsibility (utility owner, Metro, contractor, design-builder or the Concessionaire), reference to license agreements, the design and construction schedule, any seasonal work, and any environmental issues related to each potential relocation. The Utility Matrix is also used to develop and track approximate cost estimates for all utility work. The Utility Matrix is updated by the administrator as the project progresses.

A utility base drawing is developed that shows the existing utilities and indicates the proposed relocations as agreed to between Metro and the Utility owners for each impacted utility. The relocations shown on the drawings match the information shown on the Utility Matrix. The utility drawings are continually updated by the administrator and consultant as design progresses and changes are coordinated with the utility owner. A manhole, Ground Penetrating Radar (GPR) and pothole log showing information gathered by Metro during the preliminary stages of the project is taken into account throughout this process.

Utilizing the utility matrix and the latest base drawings, the project team then identifies the critical utilities that require relocation in advance in order to meet the overall project schedule. A separate procurement is then issued by Metro to advance those relocations on behalf of the utility owners and prior to the main contractor for the project.

Utilities Interface (Design)

The following activities are conducted by the Administrator:

- Identify all utility owners that have utilities within the corridor or that may be affected by the project.
- Assist in Obtaining utility maps from all utility owners within the project area or that may be affected by the project.
- Hold a utility owner orientation and kickoff meeting.
- Obtain railroad agreements and license agreements for existing utilities within the Metro owned project area or that may be affected by the project and provide determination of rights.
- Perform field designation on all utilities and surveys.
- Assist with obtaining Pothole, GPR and survey.
- Assist with Developing utility base drawing and conceptual relocation corridors.
- Hold one-on-one meetings with all utility owners to discuss a specific action plan for each utility facility within the project area or that may be affected by the project.

- Prepare and monitor schedules and budgets and resolve issues related to potential utility relocations.

- Schedule work order negotiating meetings and execute work orders for each relocation that will be performed prior to the Contractor being issued the Notice to Proceed (NTP). For each potential conflict, Metro and the utility owner will try to avoid or minimize relocations.

- Prepare language within RFP docs.

- Issue of Advance Utility Relocation Contracts via Metro.

- Lead effort with municipalities to obtain permits (traffic control, shoring, potholing, variances) for utility work.

The Administrator interfaces with the Metro Design Oversight Team and the Contractor to facilitate the following project design activities, but not limited to:

- Verify that proposed relocation designs address Metro and utility owner design criteria.

- Coordinate with other Metro disciplines to ensure designs for relocations are compatible with other project elements.

- Design schedule and budget.

- Cooperate between the contractor and the utility owner.

- Conduct work order negotiating meetings with the utility owners as it relates to design of relocations.

- Provide Metro Real Estate group with the utility location design drawings for department to issue License Agreements for all utility work within Metro ROW.

- Monitor and process invoices and payments for utility design relocation work with utility owners and the Contractor. This will include evaluating percent complete for relocation designs.

- Perform design audits for design contract compliance at given contract milestones.

- Ensure compliance with Federal requirements, such as Buy America.

Utilities Interface (Construction)

The Administrator interfaces with Project Team and the contractor, for the performance of the following project construction activities, but not limited to:

- Participate in work order negotiating meetings with the utility owners and the Contractor as it relates to construction of relocations.

- Coordinate with other groups to ensure that construction for relocations is compatible with other project activity.

- Provide Metro Real Estate group with the utility relocation as built drawings in order to establish License Agreements for all utility work within the Metro ROW.

- Provide information for utility relocation schedules, monitor construction schedule, and facilitating cooperation between the Contractor and the utility owner.

- Provide project controls representatives with utility related schedule and budgets updates for updating the project schedule.

- Monitor and process invoices and payments for all utility construction relocation work with utility owners and the Contractor. This will include evaluating percent completed for relocations. All budget information is provided to Project Controls.

- Perform construction audits.

- Coordinate as-built plans with utility owner, Metro and the Contractor.

3.4.5.2.6 Quality Management

Quality Management Program

Metro is currently using Metro Quality Management Program (QMP) on all its projects. The QMP spells out the requirements for planning, implementing and maintaining an efficient and cost effective quality program. The actual procedures implementing the QMP are contained in the Program Management Department Quality Management Program Manual. The objective of the Quality Management Program is to ensure that equipment, structures, components, systems and services are designed, procured, constructed, and tested, in accordance with contract documents and/or controlling procedures and to ensure that the internal sections of the Program Management Department are functioning in accordance with the department's Policies and Procedures. Additionally, Metro's Quality Assurance Group will define the steps necessary for the program to achieve ISO9000 certification.

The Senior Director of Quality Management is responsible of identifying and evaluating quality problems; of initiating, recommending or providing solutions; and of controlling further processing, delivery or installation of nonconforming or deficient items or services through Stop Work action. The Senior Director of Quality Management is also responsible for evaluating compliance to established quality requirements.

The project Senior Quality Assurance Manager (SQAM) is responsible for conducting audits and surveillances of contractors' design, procured items and services, construction, quality control inspection and construction testing, to ensure compliance with contract documents and/or controlling procedures. Nonconforming conditions and corrective actions are documented in audit and surveillance reports. The reports are tracked to ensure corrective actions are implemented. Designers, contractors, and suppliers are responsible for developing, implementing and maintaining quality assurance programs that meet Metro Quality Management Program requirements.

Metro Quality requirements for developing and implementing an effective quality assurance program are incorporated into all Projects requests for proposal. Bidders are required to acknowledge their understanding of and ability to adhere to quality assurance requirements as a pre-requisite to acceptance of their proposals. Presently Metro has two sets of Quality Requirements, one set used for DB projects and a different set used for DBB projects. Contractors Project Quality Assurance Program and Procedures are submitted and accepted by Metro's SQAM before the start of work.

Authority to stop work, control further processing, or prevent shipment of items that do not meet contract quality assurance requirements may be initiated by the project SQAM or other QM staff but will need to be confirmed by Metro Senior Director of Quality Management. Metro Senior Director of Quality Management recommends a Stop Work Orders to the Project Director/Manager and the Project Director/Manager coordinates the stop work action.

3.4.5.2.7 State of Good Repairs (SOGR) Projects

Engineering is supporting the Risk Management and the Operation departments for all State of Good Repairs projects. This includes development of the design and management for several small and medium sized projects.

3.4.5.2.8 Review and permit for all development projects adjacent to Metro Facilities

The City of Los Angeles Department of Building and Safety Zoning Ordinance ZI 1117 require that any development project within 100 feet of Metro Rail Facilities obtain clearance from Metro prior to the issuance of any building permit. Projects adjacent to Metro's existing or planned facilities, underground stations, tunnels, aerial stations, guide-ways, at-grade stations and underground utilities need all to comply with criteria detailed in " Metro Design Criteria Adjacent Construction Design Manual." The purpose of Metro review is to determine the effect of proposed project on the Metro structures and its transit operations, and to reduce the risk of conflict or damages. Other requirements include overhead protection, dust protection, dewatering and access to Metro property or ROW that might require Right of Entry to be granted by Metro for the development construction activities.

The criteria spell out the requirements such as the monitoring of the temporary support of excavation system for excavations within the geotechnical zone of influence of Metro structures. In order to provide a safe zone to maintain adjacent developments, all developments adjacent to Metro At-Grade Stations, Aerial Stations or Track Guide-ways shall provide a minimum 5 foot setback from Metro and developers' shared property line to the outside face of the proposed structure at Metro or the developers' property. Any proposed facility that is located within 20 feet radius of an existing Metro facility will require a blast and explosion study and recommendations to be conducted by a specialist who is specialized in the field of blast force attenuation.

3.4.5.2.9 Buy America Compliance

Metro Engineering is responsible for evaluating end products, components or utilities on Metro's federally funded projects to ensure that they are Buy America compliant, documenting findings for potential future audits and coordinating and seeking concurrence of the FTA.

3.4.6 Transit Project Delivery

3.4.6.1 Overview

Metro is committed to effectively and efficiently managing its Transit projects from the Project Development Phase, through Construction and Project Handover. Metro continually improves, updates and streamlines its project management and construction management plans, procedures and processes to ensure safe, on time, within budget and quality projects, all while honoring its commitments to Metro's patrons, stakeholders and the community at large.

The processes, procedures and supporting documents outlined in this section establish the framework for project delivery activities through all the phases of a project; they also facilitate improved communications within and between, the Metro matrix management organization, the Program Management Department and the core project teams, together with a multitude of internal and external stakeholders.

3.4.6.2 Management Organization, Approach and Responsibilities

The delivery of transit projects is undertaken under the leadership of Program Management. Transit projects are generally developed and implemented by being advanced along a continuum that includes concept level planning, planning, design activities, procurement and construction through, and including, testing, start-up and ultimate operation of the transit project. Generally, there are five Phases from the start to finish of most projects:

- Project Development
- Engineering
- Construction, Consultant Services and Equipment/Materials Procurement
- Project Activation
- Revenue Service

Depending upon the specific project work, activities in separate phases may overlap and be undertaken concurrently.

Metro's Transit projects include a broad range of infrastructure and technology, from vertical structures required to support operations and security activities to horizontal infrastructure such as Light Rail Transit and Subways. Consequently, the Project Delivery process and related activities must be adapted at project initiation to suit the specific requirements and context of each specific project. Customization can range from tailoring activity and logic adjustments to adjusting work efforts associated with specific activities. Typically, regardless of the type of funding, a project will go through all five phases, although some of the phases may be collapsed or undertaken in parallel. Examples of project customization include the effects of the specific environmental clearance process, the size of a project or the specific project delivery method.

3.4.6.3 Lifecycle Project Management

The Transit Project Delivery Process outlines how Metro evaluates, plans, designs and constructs transit capital projects. This process provides consistency and is how Metro works to ensure projects are developed and delivered safely, on time, within budget and to the required quality.

The Project Delivery Process consists of the following five phases:

- Project Development
    - Concept Development
    - Environmental Planning and Clearance
    - Project Risk Analysis and Procurement Planning
    - Preliminary Engineering
    - Advanced Preliminary Engineering
    - Early Utility Relocations
- Engineering
    - Final Design
    - Contract Requirements
    - Real Estate Acquisition
- Construction, Consultant Services and Equipment/Materials Procurement
    - Advanced Construction Activities
    - Construction
    - Equipment/Material Procurement
- Project Activation
    - Testing
    - Start Up
- Revenue Service
    - Operation and Maintenance
    - System Performance Monitoring/Assessment

- Before and After Study
- Capital Replacement Planning

Project Delivery Summary and Key Deliverables

Development

The Project Delivery Process begins with the initial development and evaluation of the project through the Development Phase. This will include the development of alternate concepts for the project. The preferred alternative(s) arising from concept development are taken through the Environmental Clearance process and, in parallel with the Environmental Clearance, Preliminary Engineering is undertaken.

The lead responsibility for this phase varies, depending upon the size, type and scope of a specific project. Depending upon this, either Countywide Planning and Development (Planning) or Program Management is responsible for studies, documents and reports necessary to support the requisite Environmental Clearance. Planning or Program Management serves as the liaison with local jurisdictions, governmental agencies and community groups during the development of the environmental documents and Preliminary Engineering.

Concept Development and Environmental Planning and Clearance

The Countywide Planning and Development (CPD) department is responsible for concept development and (along with the Environmental Compliance and Sustainability Section) the environmental clearance process for major transit projects. Concept development is when Metro considers the improvements the project is intended to deliver and considers alternate solutions to deliver the project goals. The environmental planning and clearance process involves alternative studies, site selection, hazardous material and geotechnical studies, utility and third party coordination, compliance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act 1970 (URA), as/where applicable, for real estate acquisitions and meeting relevant state and federal environmental regulations related to air quality and requirements for historical preservation and protection of public lands. For more information related to phases of environmental clearance refer to Section 3.3.2.1.3 California Environmental Quality Act (CEQA)/National Environmental Policy Act (NEPA).

Project Risk Analysis and Procurement Planning (Contracting Strategy)

The Program Management Department is responsible for risk analysis. Ideally, a risk assessment is completed towards the end of the Development Phase. The risk assessment is intended to determine if the risks for the project have been identified and that the mitigation process has commenced through the Project Development process. The output from this process informs the ongoing design process and influences scopes of work for subsequent phases and activities. At this stage, market and construction risks are reviewed as they may influence the decision on the project delivery method. The adequacy of schedule and cost contingencies and specific plans to mitigate the remaining project risks are evaluated in the risk assessment. The analysis determines if the project delivery method, schedule and cost estimate reflect an effective allocation of risks to the parties with the best capability to control each risk.

Undertaking a feasibility analysis permits the project to move forward rapidly into and through Engineering with a minimum of design changes, disruptions or delays. As part of this process, development and continued refinement of the Project Management Plan and sub plans developed under the policies and procedures identified in that Plan, such as, but not limited to the Fleet Management Plan (FMP), the Real Estate Acquisition Management plan (RAMP) and the Safety and Security Plan (SSMP) etc. are undertaken.

A range of potential project delivery methods are considered within the context of project risk analysis and procurement planning (contracting strategy). The window of opportunity to select some delivery methods will close as the project moves through various stages of development.

The delivery method and contracting approach is ideally chosen to minimize project risk and provide the greatest likelihood of implementation success, subject to any overriding schedule or cost considerations. In other words, success is measured in a variety of ways, such as minimizing costs and cost overruns or expediting the project schedule (or minimizing the risk of schedule slippage).

The rationale for early decisions on the overall contracting approach is that it is essential to establish the various roles and responsibilities to avoid duplication of efforts or schedule delays. The contracting approach will directly influence the design scope of work, which will be different for different delivery methods. The use of an alternate delivery method will influence both the consulting and contractor contracting strategy and the types of base contractual documentation and the prescriptive or performance criteria to be used.

Preliminary Engineering (PE)

Program Management department is responsible for progressing the PE design, generally to the 30% level, although this is dependent upon a number of factors, including the project specific delivery method.

The Program Management department is responsible for management administration and overall coordination of the design during PE. This includes technical direction and management of the design, design contract administration commensurate with preliminary engineering, determination of progress for reports and contract payments, ensuring that the preparation of design documents meets the project requirements, criteria, schedules and budgets.

For D/B/B and D/B contracts, the design consultant will contract directly with Metro, administered by program management. For alternate delivery, the design is often the responsibility of the contractor or their design subcontractor. Administration of the design consultant would be performed by the contractor with Metro generally fulfilling a role as included in the terms of the alternate delivery contract.

Key Activities/Deliverables include:

- Management (D/B/B) or oversight (D/B) of design quality, constructability, reliability and maintainability.

- Adherence to Metro design criteria, standard specifications, general design planning concepts, standard drawings, directive drawings, design management procedures, system assurance, fire/life/safety, environmental and sustainability policies and operations and maintenance procedures.

- Management (D/B/B) or oversight (D/B) of design consultants who provide engineering reports, calculations, drawings, specifications and associated construction documents.

Facilities Engineering (FE) Key Activities/Deliverables include:

- Performance of architectural, civil, corrosion, utility, track work, structural, geotechnical, mechanical, traffic, surveying, right of way, electrical design, systems design and environmental and sustainability policies integration.
- Assurance that the design is consistent with project requirements and Metro policies.
- Assist in the preparation and packaging of D/B or other alternate delivery contract bid documents.
- Coordination of design with utility and governmental agencies.

Systems Engineering (SE) Key Activities/Deliverables include:

- Development of system design standards.
- Development of designs consistent with project requirements.
- Review and concurrence of interfacing design by other disciplines
- Design or upgrade of maintenance or other existing operational facility.
- Design of signaling systems, communication systems, traction power and Supervisory Control and Date Acquisition (SCADA) design, systems cable and raceways, duct banks, corrosion control and other applicable systems.
- Design coordination with rail vehicles or buses.
- Design coordination with fare collections systems
- Operations and maintenance planning

Design Configuration Control

Third Party Agreements - All interagency and other agreements required to implement the project are identified and these agreements are executed to the extent possible. At a minimum, preliminary agreements should be obtained from key project stakeholders prior to engineering to establish confidence that the proposed project is acceptable to these third parties and that the required project approvals can be obtained by design completion.

Value Engineering (VE) - A VE Study should be completed prior to the completion of the Development Phase. This study should confirm that the Preliminary Design (PD) phase effort has fully evaluated all feasible and reasonable configurations and design options. The design and

configuration alternatives developed during the VE study as well as its own process for evaluating and accepting or rejecting the VE proposals should also be documented. Any accepted VE proposals should be incorporated into the Development Phase design documents or noted as design refinements to be undertaken as early as possible in the Engineering Phase.

Constructability Review - The Constructability review is conducted by staff experienced in construction of similar projects or a consultant. The constructability review considers the likely response by contractors bidding on the proposed project as well as the ability to efficiently construct the project including critical interfaces among construction activities, availability of sufficient staging and work areas, ability to maintain traffic and pedestrian operations, incorporation of feasible sustainability strategies, and conformance to common construction means and methods for the project area. A Peer review involving other transit agencies that have implemented similar projects are an effective way to incorporate lessons learned from other projects and to identify best practices to carry forward into the Engineering Phase of the project.

Risk Assessment

Safety and Security Management Plan (SSMP). The SSMP describes the strategic means and methods for safety and security management and strengthens the role of safety and security oversight and management in all phases of a project. The SSMP includes/requires:

- A policy statement
- Identification of Safety and Security Interfaces
- Establishment of a Safety and Security Organization
- Identification of Safety and Security Activities by Project Phase
- Construction Safety and Security
- Coordination with External agencies

Project Development - Key Deliverables

The following is a list of key deliverables, which may be required to define the project at the completion of the Development Phase:

- Sufficient design and engineering plans and outline specifications
- Design analyses, project definition, design criteria, value engineering and operational criteria reports
- Capital cost estimate
- Operating Plan
- Financial Plan

- Sustainability Plan (includes environmental compliance)
- Contracting Plan and Risk Allocation
- Project delivery method and contract packaging plan
- Risk Assessment
- Identification of required third-party and utility agreements and permit
- Identification of required right-of-way or property rights
- Project schedule, including detail for the Engineering Phase
- Preliminary schedule for Project Activation (testing and start-up)
- Final Environmental Clearance documentation (Categorical Exclusion (CE), Finding of No Significant Impact (FONSI), or Record of Decision (ROD) based on an Final Environmental Impact Study (FEIS))
- Programming of Engineering Phase and the construction and procurement of materials and equipment
- All documentation required under the New Starts program or other funding program
- Project Management Plan that demonstrates the legal, financial and continued technical capability and capacity to undertake the proposed project
- Project Management Plan sub-plans – rail or bus fleet management, real estate needs/acquisition program, safety/security needs and program etc.
- Communications Plan

Some of the specific requirements for the deliverables for the Development phase will depend on the selected project delivery method. The selected project delivery method will also influence the development of the Project Management Plan.

Engineering Phase

Depending upon whether the project is a D/B/B project or alternate delivery method, the purpose of the Engineering Phase is to prepare complete and final drawings, technical specifications and contract requirements documents necessary to advertise and obtain competitive construction (and/or equipment/materials) contracts. This will include clear statements of testing requirements and acceptance criteria for the safety and functionality of all subsystems. Typically, for a D/B/B project, this phase will also include the preparation of the engineers estimate and detailed schedule, analysis of the construction bids and award or recommendation for award and real estate acquisition.

Final Design

Final design provides the technical detail necessary to implement a project, from utility work, through construction and equipment and materials procurement to testing and start up. Final dimensions, locations and associated details are provided on signed and sealed engineering drawings by the Engineer of Record.

The Design team coordinates with Metro departments, affected Utility Owners, local jurisdictions and other affected parties for review and comment on the design as the design is developed.

Design Reviews. Regular design reviews are undertaken as the work progresses to ensure compliance with design criteria, standard drawings, and fire/life/safety requirements, scope of work and performance requirements, design management procedures, quality control programs, system assurance programs and to establish operations and maintenance procedures. Reviews are generally undertaken at 60%, 85% and 100% final design completion.

Depending upon the delivery method, the design may be advanced in certain areas to accommodate early release or advance construction for selected elements of the design.

As the design develops, changes to contract specific technical design details, drawings and specifications are monitored through the design review and coordination process rather than through a formal change process. Contract specific plans, drawings, specifications and cost and schedule estimates are submitted for review by all disciplines within the project at pre-established milestone points throughout the design phase under formal Configuration Management controls.

Design Criteria. The design is undertaken using prescriptive and or/performance criteria. The following includes details of the Metro requirements:

- Design Criteria and Standards of the City of Los Angeles (and other local City's having jurisdiction), Los Angeles County and Utility Agencies.

- California Green Building Code provides minimum requirements for the incorporation of sustainability requirements to the project. There are other environmental and sustainability requirements on the project depending on the jurisdiction where project is constructed or if certification to a rating system (such as Leadership in Energy and Environmental design) is a required for the project.

- Metro Rail Design and Operational Design Criteria and Standards provide written guidelines and directives that govern the rail design, and performance standards for design development of facilities and system elements of the project.

- Metro Standard Guideline Specifications. These Specifications have different forms, depending upon the delivery method. They can be either Prescriptive or Performance Specifications) providing standardized information on project requirements, submittals, materials, methods, testing and acceptance criteria.

- Standard Drawings provide standardized details to the final design consultants for development of final design drawings.

- Directive Drawings provide pictorial representation of selected design requirements to the

final design consultant for development of final design drawings. They provide an aid for standardized basic details.

Other than national, state or municipal codes that may have jurisdiction, the Metro Rail Design Criteria generally provide the governing standards for the rail program. The design criteria have been developed to be consistent with national or local codes and provide guidance and standards in areas where the codes are silent.

The design process and deliverables are undertaken and monitored by reference to standards of practice contained in Quality Manuals, System Safety and security manuals, Computer-Aided Drafting and Design (CADD) Manuals, Metro Rail Design Criteria etc. Design documents are cross-checked at design review milestones for coordination between various architectural, design, signage, public art, environmental and sustainability, engineering and operations and maintenance groups (disciplines). Each discipline reviews the work of related disciplines to ensure that facilities and equipment are not in conflict with regard to location, dimensions or interconnections (interfaces). Intra/inter disciplinary design review and coordination involves meetings, discussions and mark ups by the design groups to periodically evaluate interfaces between work elements to assure that those elements can be properly installed. This review and associated documentation may be incorporated into other design review milestones.

Systems. To ensure that designs for major systems procurements adhere to all established design criteria and standards, incremental design reviews are conducted. The following design reviews are typical:

- Preliminary Design Review
- Final Design Review
- Mock-up Review
- First Article Configuration Inspection (FACI)

Constructability Review. A constructability review is undertaken during PE and is repeated during final design, ideally with expanded input to include permitting agencies and utility agencies.

Operation and Maintenance Review. To ensure that construction projects reflect operational needs, Operations and Maintenance (O&M) personnel participate are involved in the establishment of equipment and facility designs, constructability reviews, technical performance specifications and procurement terms and conditions. O&M personnel review design and procurement documents at each stage of design review in support of the project schedule.

Real Estate Acquisition

Ideally, prior to the award of each construction contract, all real estate necessary for the contract work is acquired, including land that may be leased for construction plant and access.

On a federalized project, Real property must be acquired, managed, and used in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, 42 U.S.C. and 49 C.F.R. part 24, the implementing regulation. Real property is defined in 49 C.F.R. as "land, including land improvements, structures and appurtenances thereto, excluding movable

machinery and equipment." The acquisition of easements and rights of way are also considered real estate acquisitions.

Real Estate (within the Countywide Planning and Development department) and Environmental Compliance and Sustainability (within Program Management) staff are responsible for real estate acquisition. For more information related to phases of real estate acquisition refer to the CPD chapter.

Construction and Equipment/Materials Procurement Phase

This phase includes the acquisition of all project structures, the fabrication or manufacturing of the components and subsystems. Metro is committed to implementation of sustainability principles for the procurement of equipment and materials consistent with its environmental and sustainability policies and related Board mandates. This equipment and material will be used and/or installed with the fixed facilities. For federally funded projects, the procurements should also comply with Buy America requirements.

For a D/B/B contract, construction bid packages are prepared during Engineering and are bid upon by contractors for various aspects of work.

Construction management is performed by Project Director/Manager or Metro consultant and involves oversight of the work in progress, cost and schedule control, subsystem inspection and testing, quality assurance and documentation of as-built configurations, QC inspection records and deficiency lists.

Construction

Construction Oversight

Each major construction contract has project and field management support staff for daily management and oversight of construction, safety, quality, cost, schedule, survey, geotechnical, estimating and contract administration services. The Project Director/Manager or designee is responsible for fulfilling the requirements, obligations and responsibilities contained in the Metro Resident Engineers Manual. This includes, but is not limited to, coordination of the inspection staff activities, monitoring progress and approval of payments, schedule analysis, shop and working drawings processing, Additionally, the PM, in conjunction with Vendor/Contract Management staff, leads the administration of contract change order negotiations, claims administration and close out, in accordance with the terms of the contract and approved plans and specifications.

The goal of Construction Management (CM) is to provide effective oversight of the construction effort with a focus on safety, compliance with contract plan and specifications including applicable local, state and federal requirements, adherence to environmental impact restrictions and performance within established budget and schedule goals. Generally, Metro will use an integrated construction management approach, with staffing provided by Metro and consultants. The CM organization has the day-to-day responsibility for oversight of the contractor's scope for construction and testing of tunnels, cut and cover guideways, stations, utilities and systems. CM's functional responsibilities during this project phase extend from commencement of construction through completion of integrated testing, and include, but are not limited to the following:

- Coordination of interface requirements between the contractor and third parties whose work scope or jurisdiction may impact or be impacted by the contractor.

- Monitoring effectiveness of the contractors safety program and compliance with related contract requirements; ensure safety plans and practices ae in-place to prevent incidents.
- Ensuring quality assurance resources and measures are provided as required.
- Managing construction schedule and cost.
- Facilitating timely and responsive communication with the contractor is maintained.
- Supporting assessment of contractors requests for equitable adjustments to the contract.
- Ensuring measurement of and payment for work performed is in strict conformance with the specifications and contract provisions; assist in timely processing of pay applications.
- Assist in implementing and coordinating claim mitigation and resolution actions.
- Ensure accuracy of data maintained in Change Notice, Change Order and claims tracking system.
- Establish monitoring systems to measure noise, dust and geotechnical settlements around worksites; gather, analyze and maintain data on a real time basis.
- Ensure survey checks for the project are regularly performed.
- Coordinate utility work in conjunction with Third Party Administrators.
- Coordinate the delivery of Metro furnished equipment and material.
- Oversight of contractor compliance with environmental and material testing requirements.
- Support Documentation.

Resident Engineers Procedures Manual. The RE's Manual provides a process and associated procedures for the administration and management of design-bid-build and design-build contracts. The procedures are augmented by cross-referencing to excerpts from the contract terms related to the requirements of specific project, in order of precedence: General Conditions, Compensation and Payment Provisions, Special provisions and General Requirements.

The contents of the Manual include:

1. Introduction
2. Resident Engineering Functions
3. Constructability Review

4. Pre-Construction readiness review
5. Permitting
6. Construction Safety and Security
7. Surveys, Instrumentation and Monitoring
8. Project Control
9. Document Control
10. Change Control
11. Quality Control
12. Quality Assurance
13. Contract Administration
14. Environmental Compliance
15. Sustainability Plans
16. Construction Safety
17. System Safety and Startup
18. Duties of Geotechnical Group
19. Historical Scientific and Archaeological Discoveries

Other Support documents include:

- Metro Quality Management Program Manual
- Metro Transit Project Delivery Policies and Procedures
- Metro Quality Management Policies and Procedures Manual
- Metro Transit Project Delivery Inspection Instructions
- Metro Resident Engineer Manual
- Metro Configuration Management Policies and Procedures

- Metro Engineering Policies and Procedures
- Metro Procurement Policies and Procedures

Design Support during Construction

Design support during this phase will consist of the review and acceptance of shop drawings and submittals, answering requests for information, disposition of nonconformance reports, and technical assistance. During this phase, the design consultants will provide continuity for the interpretation of design concepts and resolution of dimensional and material acceptability issues. Responsibilities will include:

- Review of final design submittals by contractor.
- Review shop drawings and requested submittals according to the established schedules and time periods.
- Consider matters of engineering judgement and application of design principles to construction.
- Transmit submittals as required for external review and approval.
- Disposition Requests for information regarding interpretation and application of design intent.
- Technical reviews and support associated with change notices/orders to ensure that modifications are adequately analyzed, designed and approved.
- Revise design documents to reflect changes approved by the Change Support to the Quality program for the resolution of Nonconformance reports.
- Supplement engineering analysis, calculations, sketches, drawings and technical information as requested.
- Review of final design documents produced by the contractor for acceptability and conformance with contract documents.
- Secure complete, timely and accurate as-builts from the contractor for all elements of work.
- Provide input to the Metro Lessons Learned Program.
- Undertake the inspection and record compilation in preparation for and issuance of Substantial Completion.
- Obtain Certificates of Acceptance from Utilities and Third Parties.

Equipment/Material Procurement

For Equipment/Material Procurement, whether this is a Metro or contractor responsibility depending upon the specific project requirements, a specific plan should be developed for each contract to procure system equipment elements (e.g. signals, traction power and substations, communications, fare collection etc.) to assure that the specifications and contract data requirements are followed, inclusive of subsystem inspection and testing before assembly or shipping to the job site. Metro is committed to implementation of sustainability principles for the procurement of equipment and materials consistent with its environmental and sustainability policies and related Board mandates.

Project Activation Phase

The Activation Phase culminates with the acceptance of an operating transportation system (or improvement) in accordance with pre-determined criteria, based on the satisfactory completion of the construction or fixed facilities and the integration of all components into a fully functional transit system. Tests include manufacturing plant and on site performance testing of major systems and subsystems and integration testing of the rolling stock, systems and systems in their designed and constructed operating environment. Completion and acceptance testing is key to the Safety Certification process.

Testing and Start Up

The CM organization will support Metro Operations in the acceptance and Start-Up stage of the project. This support begins with Pre-Revenue Operations and continues through to the Revenue Service Date.

- Undertaking runs of equipment and systems, including tests to verify the compatibility and reliability of both individual and integrated systems for acceptance; verify documentation of each step in these processes.
- Witnessing and documenting test procedures per Test Plan requirements.
- Assist Metro Operations and Fire Life Safety (FLS) during rail activation and systems safety and security certification.

Design Support during Testing and Start Up

During system testing and start-up of the project, the focus shifts to system integration activities. A Test and Start-Up Plan will be prepared during final design of the project. The Plan will address:

- Test planning
- Subsystem testing
- Systems integration
- Integrated systems testing
- Test operations

- Rail Activation
- Training
- Safety and security
- Vehicle delivery and testing
- Vehicle operations and maintenance

Systems vendors and contractors will perform the majority of this work, with input from Metro. This work will include acceptance of contractor or vendor test results, verification of completion of individual elements test levels, testing and components and simulated operations testing.

Revenue Service Phase

Operation and Maintenance

The Revenue Service Phase is the period of normal system operations that occurs after the transit capital project has been completed. Revenue service begins when the system accepts transit or other passengers for revenue service and when stations etc. are open to patrons for normal use of the facilities.

During the early part of this Phase, the construction contractor or supplier will complete all Warranty items, consistent with the terms of the construction or equipment/materials supply contracts.

System Performance Monitoring/Assessment

Metro undertakes a System Performance Assessment in order to maintain a high level of system performance. This process identifies any system design inefficiencies, or areas for improvement of operational performance and increasing passenger carrying passenger capacity. This will contribute to Metro's lessons learned process.

Before and After Study

Federal law requires sponsors of transit projects receiving major new starts project funding from FTA to produce a Before-and-After Study that assesses the impact of the project after it is built. In the study, the project sponsor compares predicted versus actual construction costs, service levels, project scope and ridership after project has opened. These studies inform FTA's decisions on future proposed projects and contribute to the likelihood that major capital projects will start on time, finish on budget and meet ridership goals.

This annual report analyzes the impact that a New Starts project has on transit services and ridership, evaluates the consistency of predicted and actual project characteristics and performance, and identifies sources of differences between predicted and actual outcomes.

Capital Replacement Planning/State of Good Repair (SOGR)

Metro plans capital replacement needs using its Transit Asset Management Plan (TAM), developed in accordance with the requirements of MAP-21. In addition, the FAST Act of 2015 requires incorporation of resiliency strategies into federally funded projects to address the impacts of

increased frequency of extreme weather events and stormwater. Metro has developed an asset inventory containing almost 250,000 Metro assets in order to estimate present and future asset conditions, objectively prioritize re-investment and estimate future SGR needs:

- Asset Inventories
- Assessment of Metro Asset Conditions
- Reinvestment Needs and Prioritization

In addition, Metro has an established maintenance and renewal/replacement program for revenue vehicles and possesses significant bus overhaul capacity.

Risk Management, Operations, and ECS are collaboratively working to address SOGR projects, issues, and implementation strategies.

3.4.7 Highway Project Delivery

3.4.7.1 Overview and Key Functions

The Metro Highway Program is responsible for the cost effective and timely delivery of safe and sustainable transportation improvements on streets and freeways across Los Angeles County. In line with the Metro Long Range Transportation Plan, the Highway Project Delivery Section advances the planning, environmental, design, and construction of major capital projects such as carpool lanes, mainline widening, freeway connectors, auxiliary lanes, freeway ramp improvements, grade crossings, sound walls, and other freeway capacity, operational, and safety improvement projects. In addition, the Highway Program works with regional and local stakeholders to implement smaller scale operational improvements such as ramp metering, traffic signal synchronization, and corridor management solutions.

The Metro Highway Program is responsible for guiding major projects through the various phases of the state and local project development processes, which are discussed in subsequent sections of this Plan. In this capacity, the Metro Highway Program works closely with the California Department of Transportation (Caltrans), sub-regional councils of government (COGs), and the local jurisdictions in Los Angeles County to advance the planning environmental clearance, design, and construction of regional, sub-regional, and local projects.

The Highway Program currently manages over 300 discrete projects and programs across Los Angeles County. Key departmental functions include program management, project management, construction management oversight, grant management, contract management, quality assurance/quality control, and multi-agency coordination. The Highway Program is multidisciplinary in nature and engages in all aspects of the highway project delivery process for projects that are internally led or delivered by Caltrans and/or the local agencies.

- Program Management – The Highway Program manages a suite of over 300 projects representing an overall project portfolio of over $34 billion and growing. The Highway Program actively tracks the budget, schedule, and delivery details of each and every one of these projects and provides status updates and delivery metrics to management and the Board.

- Project Management Contracts – Each project in the Highway Program is subject to strict project management controls to ensure projects are delivered in a manner that is consistent with agency goals and objectives. Each project manager is responsible for all aspects of the project delivery process and continuously monitors budget, schedule, and delivery risks as well as the quality of products and services delivered by both internal and external resources.

- Construction Management Oversight – Although advertising, award, and management of construction projects is the responsibility of project owners, the Highway Program provides oversight during the construction of major projects and works with project owners and stakeholders to assist in completion of projects within the assigned schedule and allocated budget and satisfactory mitigation of the impacts of construction activities.

- Grant Management – The Highway Program manages several hundred project grants awarded to local agencies throughout Los Angeles County to fund highway operational improvements such as intelligent transportation systems, the addition of left turn pockets, intersection improvements, street widening, and similar projects. Project managers work directly with each respective project sponsor/grantee to ensure these projects are delivered in a timely manner and within budget.

- Contract Management – The Highway Program oversees and manages a number of contracts and task orders and is responsible for ensuring that our consultants are delivering high quality professional services in a manner that is consistent with the defined scope of work and in compliance with the terms and conditions of the contracts.

- Quality Assurance/Quality Control – As part of every project, the Highway Program is engaged in both quality assurance and quality control during the course of the project delivery process. The overall goal is to ensure cost effective delivery of high quality products and services.

- Multi-Agency Coordination – The Highway Program works closely with Caltrans, the sub-regional COGs, County of Los Angeles, and all 88 cities in the County. Successful project delivery requires substantial internal and external coordination to achieve consensus and support. The Highway Program excels at bringing agencies together to guide the development of projects, identify project issues early and agree on appropriate solutions, and expedite reviews and approvals.

3.4.7.2 Project Development and Management Process

In the delivery of highway improvement projects, Metro follows the development process established by Caltrans for all projects on the State Highway System. The Caltrans project development process spans from project inception to the completion of construction. The following are brief descriptions of each phase of the project development process:

Project Initiation: This is the first formal step in developing a solution for a specific transportation problem. The project initiation step follows system and regional planning activities that identify and prioritize local, regional, and statewide transportation objectives. The outcome of the project initiation step is normally a Project Study Report - Project Development Support (PSR-PDS) document recommending a programmable project with a defined scope, cost and schedule documented in the Project Initiation Document (PID).

PIDs are necessary to program and fund projects. These documents are also used to prioritize projects and to determine if it is in a region's or the State's best interest to fund continued

development of that project. The programming step could provide funds for one or more phases of a project. With a PSR-PDS, funding is provided to support the cost of resources to complete the next phase.

Project Approval and Environmental Document (PA&ED): A project must satisfy a clearly defined purpose-and-need. It must meet State, regional, and local goals and objectives. For capacity-increasing projects, this includes air quality improvement goals. Environmental studies are conducted to analyze the effect and impact of the various project alternatives. The Preferred Alternative selected is the one that causes the least environmental impact while still serving the essential transportation needs. Environmental Studies are required by state and federal laws under the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). All projects in California must comply with CEQA and all projects using federal funds or requiring federal action must comply with NEPA. The Project Report (PR), a document based on the PID, serves as the engineering and decision-making document for approval of a single preferred alternative. The PR details the scope, schedule, the cost and the environmental impacts of the project. The ECS Section works with Highway Project Delivery staff to provide technical assistance during this process.

Plans, Specifications & Estimates (PS&E): This is the final engineering/design phase of a project. Design involves obtaining subsequent approvals and agreements for a buildable project, writing an engineering construction contract document, identifying and acquiring additional right of way needed, securing environmental permits, and developing final design package for the project.

Construction: The PS&E project documents and bid package, consisting of specifications, project Special Provisions, bid requirements and contractor responsibilities are assembled for advertising. The contract is advertised and awarded. This phase continues to completion of the project. The current practice is for project owner agencies (Caltrans and local agencies) to advertise and award construction contracts for their projects. Metro continues to accelerate highway project delivery in all pre-construction phases of highway projects. However, Metro stands ready to assume advertising and management of highway project when the owner agencies need assistance.

Project Closeout: The Resident Engineer prepares the final construction project records when the project construction phase is complete. The project is not complete until the final contract estimate, project history file and as-built plans are completed, final right-of-way activities completed, claims are resolved and all mitigation work is completed. These items may take months or years following the actual construction of the project, but constitute a critical element of the project development process.

3.4.7.3 Lifecycle Project Management

Metro's Highway Program management approach for each of these phases of project development varies depending on which entity is designated as the project lead. The following three arrangements are the most common:

Metro-led Highway Projects

For any phase of a project on the State Highway System (SHS) or the arterial network funded by Metro and for which Metro has been assigned the lead role, Metro manages the delivery of work products and the overall project coordination and approval processes. Construction of these projects is normally done by the project owner unless the project owner conveys that responsibility to Metro and Metro accepts such responsibility. In these projects, the Metro Project Manager is responsible

for all aspects of the project delivery process and continuously monitors budget, schedule, and delivery risks. Because Metro is not the owner-operator of the highway system, this work is done in close collaboration with the owner of the facility (i.e. Caltrans, cities or LA County). To ensure this collaboration is continued throughout the project development process, a Project Development Team (PDT) inclusive of Metro, the project owner and all relevant stakeholders is formed at the onset of the project to collaboratively advance the project.

To deliver highway projects, the Highway Program leverages the use of contracted professional Architectural and Engineering (A&E) consultants. These projects require the greatest level of involvement by Metro staff. A Metro Project Manager is assigned to each project and is supported by an Assistant Project Manager and staff from other Metro departments such as Program Management/Project Controls, Vendor/Contract Management, Marketing, Community Relations and Legal. The Metro PM is responsible for ensuring the completion of each phase on schedule and on budget.

Caltrans-led Highway Projects

For projects on the State Highway System funded by Metro and led by Caltrans, Metro provides funds through a Funding Agreement with Caltrans, is on the PDT, and provides active oversight for all phases of project development. A Metro Project Manager is designated to oversee the delivery of work products, engage in active agency coordination to ensure the timely resolution of project issues, and to assist in management and mitigation of risks. Metro Project Manager provides change, progress, and completion reports to the Board. An Assistant Project Manager and representatives from Metro Community Relations, Legal, and Marketing may be assigned to the project on as-needed basis.

Locally-led Highway Projects

The Highway Program oversees development and implementation of several hundred local roadway operational improvement projects funded by Measure R Highway Operational Improvements Sub-regional funds. Highway Program Project Managers work directly with project sponsors to ensure these projects are delivered in a timely manner and within budget.

Highway Program has taken a proactive role in providing oversight during the construction of major projects as well as working with project stakeholders to mitigate the impacts of construction activities. For a select number of major projects, the assigned Metro Project Managers will actively work with Caltrans to address and resolve construction issues quickly to minimize project delays and contain costs.

3.4.7.4 Highway Program Interactions with Various Metro Stakeholder Committees

Technical Advisory Committee: This State mandated committee is comprised of 35 voting and non-voting representatives from Caltrans, LA County Public Works and city transportation staffs, Southern California Automobile Club, Southern California Association of Governments, the California Highway Patrol and the goods movement industry. This committee provides technical assistance (review, comment and make recommendations) and evaluate various transportation proposals and alternatives. Transportation issues addressed by this committee include the funding, operation, construction and maintenance of streets and freeways, bus and rail transit, transportation demand and system management, accessibility for the disabled, and air quality improvements. The Highway team participates in TAC meetings, in conjunction with other Metro departments and disciplines. The TAC committee meets monthly. There are a number of related subcommittees (e.g.

Streets and Freeways, Bus Operations, Local Transit Systems and the Transportation Demand management/Air Quality) that also meet monthly (or a bimonthly).

Streets and Freeways Subcommittee: This 16 member technical subcommittee of TAC is comprised of 3 ex-official members from Caltrans, and LA County Department of Public Works and city transportation staff. This subcommittee provides assistance to Metro by reviewing and evaluating various transportation policies, issues and transportation funding programs as they pertain to the Call for Projects, legislation, funding and policies as it relates to freeway, arterials, signal and signal synchronization, bicycles and pedestrian projects, arterial capacity projects, project delivery and goods movement. The Highway team participate in this subcommittee with other Metro departments and disciplines.

Measure R Highway Advisory Committee: This committee is comprised of the Executive Directors representing various Councils of Government and related Steering Committees. This committee reviews the progress of Measure R projects and expenditures, and provides input on the utilization of the Measure R funds. Typically this committee meets quarterly but may meet more frequently as needed.

COGs/Subregions, cities, and the County of Los Angeles are members of the Metro Highway Advisory Committee. The Committee meets quarterly. These meetings are structured to discuss program and project guidelines, issues, latest changes, multi-agency coordination, the subregional performance in delivering projects, and other key issues.

Metro/Caltrans Coordination Committee: This committee is comprised of Metro Highway Program Staff and Caltrans Program/Project Management Staff. This committee is tasked with ensuring the implementation and delivery of the Metro Sponsored Caltrans projects, as well as local projects initiated by other stakeholders, are on time, within budget and scope. This committee meets monthly.

Metro/Caltrans Executive Management Committee: This committee meets monthly and is comprised of executives from Caltrans and Metro's Highway Program. The committee is tasked with coordinating agency efforts, establishing policies and priorities, and resolving disputes.

Subregional Entities /Councils of Government Committees:

The Councils of Government (COGs) representing each of the subregions in LA County have been assigned the responsibility of making project programming recommendations to the Metro Board for their respective Highway Operational Improvement programs. These recommendations may include new project nominations, prioritization of projects, scope changes, budget adjustments, etc. The governance structure for each COG varies, but generally they are governed by a Board of Directors comprising elected officials from each of the COG's member cities. These Boards are typically supported by a series of committees tasked with making recommendations on specific areas of interest to the COG (e.g. Public Works, Planning, Housing, sustainability, etc.). These committees are constituted by senior-level staff from each of the COGs member cities. The COGs may also create subcommittees to address issues specific to large scale projects or programs. The project programming recommendations for highway operational improvements typically come from a subcommittee created for this purpose by the COGs, and are either forwarded to their full Board of Directors for concurrence, or directly sent to Metro staff by the subcommittee to be considered for inclusion in the recommendations to the Metro Board.

3.4.7.5 Project-related Business Practices

Close multi-agency coordination, communication, and collaboration are required for successful implementation of highway projects. Metro Board of Directors provides overall direction and policy decisions with delegated authority to the staff. Community outreach and public participation will be key elements of the project development process. Value Engineering and risks assessments will be conducted at the appropriate stage in the project development process.

For projects led by Metro, Caltrans, and Local Agencies, a Project Manager (PM), with support from the project team including Program Control, Quality Management, Real Estate and Community Relations, will oversee and manage day to day activities leading to the development of the project from the initial planning phase through final design and construction. The PM reports to the Sr. Director. When applicable a Caltrans, City and County employee will serve as liaison for highway related issues pertaining to the project.

- The PM manages and controls the project scope, quality, schedule and estimate; procure consultant services (develop statements of work, evaluate requests for proposals and select consultants); provide weekly project status reports; facilitate meetings and coordinate work with internal departments and external agency staff (e.g. local jurisdictions and Caltrans), when applicable; and develop major cooperative and service agreements with local jurisdictions, Caltrans, railroads and other third parties.

- The PM is supported by Metro project control and quality management staff through final design and construction. Project Controls will support the PM in developing and maintaining all scheduling, cost estimating and tracking, forecasting, reporting and document control systems.

- The PM is supported by Metro Community Relations staff to ensure there is a continuous participatory process in place to achieve consensus and a sense of ownership with agency stakeholders and the public.

- The PM reports to the Senior Director. The Senior Director and PM will brief senior executive management on all project matters, and request assistance in resolving issues when necessary.

- Each project will be fully staffed in accordance with the project staffing plan. Staffing plans will identify each position and level of commitment by project, recognizing some project positions will be less than full time.

- When applicable, a Caltrans employee will serve as liaison for highway related issues pertaining to the project.

- When applicable, a city staff/PM will serve as a liaison for city-related issues pertaining to the project.

- When applicable, a County staff/PM will serve as a liaison for matters related to the unincorporated areas of the Los Angeles County.

- When applicable, Metro Real Estate will support the PM through right of way (ROW) acquisition. A ROW and relocation schedule will be established and maintained in the overall project schedule throughout the duration of the project.

- When applicable, railroad interfaces will be managed through Third Party Agreements with the affected railroads.

- All contractors will be required to implement effective Quality Assurance/Quality Control (QA/QC) programs in accordance with Metro's policies and procedures.

- Information management tools that support various project management activities will be used.

- Various project delivery methods may be employed for different projects.

- Work progress, schedule and budget status will be reported regularly in an approved format.

Federal Government

A number of highway projects have been funded and implemented by Proposition C 25% and Measure R 20% funds. However, some of the larger projects on the freeway system require State and federal funds. Metro will continue to seek various sources of federal funds to pay for those projects. These funding opportunities include: Moving Ahead for Progress in the 21st Century (MAP-21); Congestion Mitigation and Air Quality Improvement Program (CMAQ); Surface Transportation Program (STP); Transportation Investment Generating Economic Recovery (TIGER) and Fostering Advancements in Shipping and Transportation for the Long-term Achievement of National Efficiencies (FASTLANE).

- **Federal Highway Administration (FHWA)**

  The Federal Highway Administration (FHWA) is an agency within the U.S. Department of Transportation that supports State and local governments in the design, construction, and maintenance of the Nation's highway system (Federal Aid Highway Program). Through financial and technical assistance to State and local governments, the Federal Highway Administration is responsible for ensuring that America's roads and highways continue to be among the safest and most technologically sound in the world.

  As for the environmental program, FHWA is involved in the environmental clearance of highway projects on the federal interstate system as well as other highways where federal funds and/or federal action is involved. In order to satisfy federal requirements and make the projects eligible to receive federal funds, highway projects must comply with the requirements of the National Environmental Policy Act of 1969 (NEPA). FHWA and Caltrans have entered into MOUs that assign many of the project-level environmental review process authorities and responsibilities to Caltrans. Caltrans and the FHWA California Division agreed to the assignment of responsibilities to Caltrans for categorical exclusions (CEs) under Section 6004 of SAFETEA-LU, 23 USC § 326. This assignment is described in the Section 6004 MOU dated June 7, 2010. Caltrans has also taken full advantage of the NEPA assignment allowed by Section 6005 of SAFETEA-LU, 23 USC § 327.

California Department of Transportation (Caltrans)

Caltrans is the owner/operator of the highway system in California including the federal interstate freeways, State freeways, and conventional highways. Metro utilizes local sales tax measure funds to supplement State and federal funds to develop and implement transportation projects on the State highway system. Metro accomplishes this major undertaking either by utilizing Caltrans resources or consulting firms. Under each scenario, all highway projects and programs must be in compliance with applicable State and federal standards.

Metro and Caltrans have prepared standard boilerplate agreements to document the terms and conditions applicable to the project development process. In Los Angeles County, Cooperative Agreements are used to outline and document roles and responsibilities of Metro and Caltrans in developing highway projects. Funding Agreements are used to identify the various funds used to support the projects, and outline Caltrans' responsibility to submit scheduled progress reports and invoices to be reimbursed for the expenses incurred in development of projects and/or providing oversight where the projects are done by consultants.

For all highway projects, project managers are assigned by Metro and Caltrans to manage/monitor projects to completion. Monthly and as-needed project management/coordination meetings are conducted for timely and effective management of individual projects. Additionally, monthly program-level project management meetings are held to review all on-going projects and identify red flags, necessary actions by Project Managers/Directors, and the need for upper management engagement.

Metro-Caltrans Executive Management meet monthly to discuss interagency collaboration in developing highway projects, address/resolve major issues, identify new candidate projects, explore opportunities for simplifying and streamlining processes for efficient and cost-effective project delivery, and other business as necessary.

Engagement with Caltrans during the project development process occurs in various forms:

Non-Locally Funded Projects: These projects are funded by State and/or federal funds under the State Highway Operation and Protection Program (SHOPP). SHOPP projects are funded through the California Transportation Commission with non-local funds and include capital improvements relative to maintenance, safety, and rehabilitation of state highways and bridges that do not add new capacity to the system (i.e.: pavement rehabilitation projects). These projects are identified via an Asset Management Plan, which identifies the current and anticipated future condition of the highway system and allows Caltrans to determine the most effective way to invest the State's limited funds to preserve the system.

In the past, Caltrans SHOPP projects were minimally connected to Metro's investment in highway improvement projects in Los Angeles County. Starting 2016, Metro and Caltrans District 7 engaged in systematic collaborative efforts to identify projects that could leverage the use of both Metro programmed and SHOPP funds with the goal of the most effective use of funds to deliver highway improvement projects.

Locally Funded Projects: As the Regional Transportation Planning Agency for Los Angeles County, Metro controls the programming of State Regional Improvement Program funds, Federal Congestion Mitigation and Air Quality, and Regional Surface Transportation Funds that can be used for Highway Projects. Metro also utilizes a portion of Proposition C and Measure R sales tax funds for Highway Projects. A highway project can use a single source of funds or a mixture of many

funds. In fact, many of the largest projects in Los Angeles County are funded with a mixture of funds. The Regional Programming section under the Countywide Planning Division is responsible for assigning particular funds to projects after the Metro Board authorizes the total programming budget for a Highway project.

Measure R introduced a source of local agency controlled funds (Highway Operational Subfunds) that has been used to support development and implementation of the State Highway System improvements in Los Angeles County. These funds are programmed by Metro after the recipient projects are determined to be eligible under the guidelines established by the Board.

Locally funded projects may be divided into four groups:

- funded and led by Metro,
- funded by Metro and led by Caltrans,
- funded by local jurisdictions by Metro sales tax measure highway subfunds and led by Metro, and
- funded by local jurisdictions by Metro sales tax measure highway subfunds and led by Caltrans

Projects funded and led by Metro: Metro takes the lead in one or more pre-construction phases of projects, issues Requests for Proposals, qualifies and employs consultants, and actively manages projects (i.e.: I-710 Freight Corridor PAED, preliminary engineering for the SR-138 Northwest, I-5 HOV lanes from SR-14 to Parker Road, etc.). Agency agreements (Corporative and/or Funding Agreements) are executed between Metro and Caltrans identifying each agency's roles and responsibilities, use of funds, reimbursements to Caltrans for identified and pre-approved services over and beyond those services provided by consultants, and other necessary items.

Projects funded by Metro and led by Caltrans: Based on availability of resources and determination of cost feasibility, development of locally-funded projects on the State Highway System may be delegated to Caltrans (i.e.: SR-71 improvements, environmental document for the SR-138 Northwest, I-5 HOV from SR-118 to SR-134, I-5 HOV from OCL to I-605, I-10 HOV from I-605 to SR-57, etc.). In these cases, Metro and Caltrans jointly define the scope of work, identify the project development team, negotiate and agree on the cost of production, and execute the required agency agreements. Caltrans actively manages the project while Metro provides oversight, quality assurance, and risk assessment/management; monitors progress and expenditures; reviews and processes Caltrans invoices for reimbursement; and assists in on-time and cost-effective delivery of projects.

Projects funded by local jurisdictions by Metro sales tax measure funds and led by Metro: From time to time, local jurisdictions may delegate the development of their State Highway System improvement projects to Metro (i.e.: I-605 Hot Spots and early Action Projects, I-710 Early Action Projects, etc.). In these cases, Metro either hires consultants or engages Caltrans in development of projects. When work is done by consultants, the process will be the same as the process for Projects funded and led by Metro described above. The local agency(ies) owning and funding those projects will be actively involved throughout the project development process.

Projects funded by local jurisdictions by Metro sales tax measure funds and led by Caltrans: When local agencies elect to delegate the development of their project(s) to Caltrans and manage those projects themselves (i.e.: I-110 Southbound Auxiliary Lane at I-405, I-405/Crenshaw-182nd Street local interchange improvements, etc.), Metro's engagement will include review and approval of the scope of work and Caltrans cost proposal prior to execution of agreements between local agencies and Caltrans and initiation of work to ensure compliance with the intent, guidelines, and the requirements of Metro's sales tax measure; project oversight; and review, approval, and payment of invoices to reimburse the local agency for the project expenses incurred.

The current general practice is for Caltrans to award and manage the construction of the highway improvement projects funded by Metro. Recently, Metro's assumed the responsibility for construction of several soundwall projects and the I-405 HOV lanes design/build project and may assume those responsibilities in the future upon request by Caltrans.

Council of Governments (COGs)

Council of Governments (COGs) or sub regions are major stakeholders in local and regional planning process. COGs provide forums for discussion and communication for their members in order to develop consensus around priorities, cooperative planning, and coordination. The actual goals and responsibilities of most COGs are determined by the member cities. COG boards are usually comprised of elected officials from the member cities and supervisors from representative districts. COG boards serve as the decision-making body and are often supported by a committee structure that makes recommendations. These committees may include steering committees, transportation committees and/or working groups that focus on specific issues or areas; and in some instances conduct their own studies and strategic planning.

During planning updates, Metro and Southern California Association of Governments (the region's Metropolitan Planning Organization) ask COGs to submit transportation lists for both long and short-range plan consideration as well as for current and future funding opportunities. The projects in the Potential Ballot Measure are a reflection of the COGs transportation needs and priorities.

The terms COG and sub region are often used interchangeably. While similar, a COG operates either under a joint-powers authority or an official memorandum of understanding. Sub regions that do not operate as COGs can still participate in policy making permitting they have bylaws. Los Angeles County is comprised of nine sub regions. These sub regions include:

- Arroyo Verdugo Cities
- Central Los Angeles
- Gateway Cities
- Las Virgenes/Malibu
- North Los Angeles County
- San Fernando Valley
- San Gabriel Valley

- South Bay Cities
- Westside Cities

As part of a broader engagement with Metro, COGs/subregions are involved with Metro Highway Program in a variety of ways:

- COGs/subregions are involved in Metro's long and short-range planning. Metro gives updates to COGs, city managers, mayors, directors and others. Metro reaches out and asks agencies to submit lists of projects. (The Metro Board ultimately advocates for these projects and decides which projects gets into plans.) During the development of the updates of plans, Highway Program staff engage in discussions and evaluations of the projects recommended by the COGs/subregions and determine the viability of the highway projects for inclusion in various plans.

- Metro Highway Program has assigned subregional liaisons to all COGs/subregions. These liaisons attend COG/subregional TAC, governing body, and other relevant meetings; assist in development of list of highway projects to be funded by the Highway Operational Improvements Subregional Funds, assist the local agency staff in developing the scope and determining the eligibility of those projects to be funded; review and comment on subregional transportation plans, program management plans, and similar documents; work with the COGs/subregions in prioritizing subregional projects; and other tasks as necessary.

3.4.8 Regional Rail Project Delivery

3.4.8.1 Regional Rail Mission Statement

To provide a safe, sustainable, integrated, and reliable rail network that serves the growing mobility needs of Los Angeles County and the greater southern California region.

3.4.8.2 Regional Rail Objectives and Key Functions

The overall goal of the Regional Rail unit of the Program Management Department is to enhance regional mobility including passenger and goods movement in Los Angeles County.

The unit's key objectives include but are not limited to:

- Delivering projects that enhances safety of the regional rail system, including rail corridors, at- grade crossings, and other Metro-owned assets.
- Coordination, management, and programing of funds for Metro's commitment to the commuter, intercity and future high speed rail networks that serve Los Angeles County.
- Managing the planning environmental clearance, design, and construction of capital improvement projects on time and within budget, along the 152 miles of Metro-owned and Metrolink operated railroad right-of-way, including Los Angeles Union Station.
- Coordination with Procurement, Communications, Engineering, Environmental Compliance and Sustainability, Grants, Office of Management and Budgets and other Metro departments to ensure small and disadvantage business participation, public input, and stakeholder

coordination in projects.

- Planning and coordination efforts with the California High Speed Rail Authority (CHSRA) for the future high speed rail program connecting northern California to southern California.
- Coordination with regional, intercity and interstate passenger rail operators (Southern California Regional Rail Authority "SCRRA" and Los Angeles – San Diego – San Luis Obispo Rail Corridor ("LOSSAN") and statewide groups to develop integrated passenger rail service in California.
- Coordination with freight rail operators (UPRR and BNSF Railway) to ensure that capital projects are compatible with shared-use agreements in place and do not impact freight operations and the ability for freight operators to serve their customers.

3.4.8.3 Regional Rail Organization

The Regional Rail Section is led by a Senior Executive Officer (SEO) who oversees the coordination with key stakeholders including SCRRA, LOSSAN, CHSRA, local municipalities, as well as the communication with Metro Board of Directors and their staff. The SEO also manages capital projects for major Regional Rail and other Metro capital projects, ranging in value from $100 million to $3 billion. In addition, the SEO provides overall leadership of Regional Rail staff to ensure that all Regional Rail capital projects and planning efforts are completed on time and within budget. The Senior Engineer assists the SEO in project coordination and management on major capital projects and other efforts as needed.

The Deputy Executive Officer/Senior Director is responsible for coordination with stakeholders and overseeing the activities of the project managers. Senior Managers, Managers, and Principal Transportation Planners report to the DEO, and manage projects ranging in value from $1 million to $140 million.

3.4.8.4 Regional Rail Lifecycle Capital Project Management

The Regional Rail unit oversees and manages all phases of capital projects from planning, environmental clearance, design, and construction, with the support of consultant teams procured for each phase of the project. The unit maintains a laser focus on cost and schedule at every phase of the project by exercising project management best practices, including risk management. Depending on the complexity and nature of each project, the project development phases can vary. Below is the lifecycle from a typical large-scale Regional Rail capital project.

Planning phase

The planning phase begins with the identification of potential projects based on safety, capacity enhancement needs, and Metro Board direction. The planning phase of work typically involves the preparation of a feasibility study or project study report (PSR) which will define the scope of a future capital project. The feasibility study is done either in-house or by consultants on a case-by-case basis depending on the project complexity. When necessary, Regional Rail staff obtains funding to procure the services of an engineering and architecture firm to research available information including project constraints, challenges, and opportunities. Rough order of magnitude (ROM) cost estimates are prepared during this phase. Regional Rail staff in coordination with the Community Relations department engages key stakeholders for input. Even though this phase of work is conceptual and high level, Regional Rail staff coordinates with several Metro departments (cost

estimate, engineering, project controls, etc.) at the onset to ensure that proper oversight is provided on the consultant work.

The goal of this phase is to identify a project that is feasible and merits further development.

Environmental and Preliminary Engineering phase

Once a project is determined to be feasible and receives support from the Metro Board for further project development, the Regional Rail staff will initiate the environmental and preliminary engineering phase of the project with the support of a multi-disciplinary consultant team and key stakeholders such as SCRRA. The majority of the project deliverables will consist of technical studies required under California Environmental Quality Act (CEQA) and National Environmental Planning Act (NEPA), preliminary engineering and design drawings needed to evaluate project impacts. The Regional Rail staff will actively engage SCRRA, Metro Engineering and Environmental Compliance and Sustainability staff to review project deliverables to ensure that Metro, SCRRA and all applicable design and quality standards are met and achieve consistency with other SCRRA projects. Also during this phase, the rough order of magnitude (ROM) cost estimate prepared during the planning phase will be updated and reviewed independently by the Metro Cost Estimating Department.

The worse-case scenario will be used to develop an alternative that sets the upper bound of project scope and cost (life of project budget). A risk register will be developed by the consultant in a workshop setting involving all key stakeholders at this phase. The risk register will be used by the project manager and the Regional Rail SEO so that project risks can be managed systematically going forward. The Regional Rail project manager will also work closely with Metro Grants department to identify potential funding sources and submit grant applications if appropriate. Last but not least, an extensive Community Outreach program and a Public Involvement Plan will be developed and implemented throughout this phase to ensure that the public receives a consistent and accurate message about the project and the community can stay involved through progressive refinement of the project improvements. Long and short-term roles and responsibilities such as operations and maintenance are identified and addressed with key stakeholders. The goal of this phase is to obtain environmental clearance of the project, lay a solid foundation for final design, and secure funding for construction.

Design/Bidding phase

Subsequent to environmental certification or clearance, the Regional Rail staff will seek approval from the Board to proceed with final design. The Regional Rail unit will evaluate the pros and cons of delivering each project via traditional design-bid-build or design-build methods. The best delivery method is recommended to Metro Board, and authorization to proceed either as a Metro or SCRRA led procurement for construction is obtained. The Regional Rail unit will ensure that the design drawings and specifications meet all applicable design standards. Additionally, a constructability review is conducted by the Construction Management team or an independent consultant. All comments received from reviewing agencies will be tracked and responded to, and comment resolution meetings will be conducted at each design milestone to ensure that the design can move forward in an efficient manner.

The deliverable from this phase is the Invitation for Bid (IFB) package for procurement of construction services (in a Design-bid-build delivery method). Regional Rail staff works with SCRRA, Vendor/Contract Management and other Metro departments to ensure that the IFB package includes funding, safety, quality control and assurance, and environmental requirements, and also

ensure adequate Small Business Enterprise (SBE) and/or DEOD participation. Construction estimates and schedules are developed with contingencies considering worst-case scenarios.

Construction phase

The Construction phase is led by the Program Management Department with a combination of in-house and consultant staff depending on resource availability. The Regional Rail staff serves as the overall project manager and final authority on change orders for the contractor, SCRRA, and consultants. Regional Rail staff also work with Project Controls to provide cost and schedule oversight. The Community Relations and Third Party departments are involved in the construction phase to ensure coordination with key stakeholders and the public throughout the construction phase. The Contracts Administrator administers the contract and, the Quality, Safety, and Environmental departments are engaged to ensure the contractor complies with the quality, safety, and environmental requirements in order to deliver the project safely and efficiently.

3.4.8.5 Regional Rail Stakeholder Coordination

The Regional Rail unit routinely coordinates with a complex network of stakeholders on financial management, capital projects, and planning studies. Table 4 lists the key stakeholders grouped by categories:

Table 4: Key Stakeholders for Regional Rail

State and Federal Agencies	Elected Officials	Passenger and Freight Rail Operators	Local Municipalities and Agencies	Community Groups
• Caltrans • CHSRA • CalSTA • FRA • FTA • CTC • FHWA	• Metro Board of Directors • City Councils and City Managers	• SCRRA (Metrolink) • LOSSAN (Amtrak) • CHSRA • UPRR • BNSF	• City of Los Angeles and other cities within the County • Los Angeles County Public Works	• Local Chamber of Commerce • Local Neighborhood Councils • Local Business Improvement Districts

Staff's role and relationship varies with each stakeholder group, however, the overarching principle is to provide transparency throughout the project development lifecycle to build partnership and trust. Major stakeholders that Regional Rail staff coordinates with include SCRRA, LOSSAN, and CHSRA.

SCRRA

Southern California Regional Rail Authority (SCRRA), a joint powers authority (http://www.metrolinktrains.com/pdfs/Agency/JPA_agreement.pdf) that was formed in 1991, comprises of five County agencies that were tasked with reducing highway congestion and improving mobility throughout Southern California: Los Angeles County Metropolitan Transportation Authority (Metro), Orange County Transportation Authority, Riverside County Transportation Commission, San Bernardino Associated Governments and Ventura County Transportation Commission. Regional Rail staff manages Metro's overall day-to-day relationship with SCRRA including coordination with the other joint power authority members. This includes the annual process to budget funds and approve invoices for Metrolink operations and rehabilitation/renovation, prioritization and programming of funds for Metrolink capital projects, input into operational issues, reviewing proposed schedules, input into marketing activities, special service, bus bridge coordination, participation in SCRRA's Technical Advisory Committee (TAC) and other member agency decisions, attending SCRRA Board and CEO meetings, briefing board members and management, among others.

LOSSAN

Regional Rail staff manages Metro's overall involvement in the LOSSAN rail corridor. LOSSAN includes the Amtrak Pacific Surfliner service, which is the second busiest intercity rail corridor in the nation. Responsibilities include attending TAC and Board meetings, briefing board members and management, budgeting funds as needed, and coordinating closely with SCRRA on LOSSAN corridor operational and marketing activities.

CHSRA

The Regional Rail staff closely collaborates with CHSRA and its consultants on the planning efforts underway for the future high speed rail service between northern and southern California. Specifically, Regional Rail staff manages the development of several early investment projects identified on the 2012 Southern California Memorandum of Understanding (MOU), reviews and provides feedback on studies performed on the Palmdale to Burbank, Burbank to Los Angeles, and Los Angeles to Anaheim project segments, and develop various cooperative and funding agreements between Metro and CHSRA.

THIRD PARTY

Last but not least, the Regional Rail unit works closely with other Agencies such as Caltrans, Federal Rail Administration, Federal Transit Administration, County of Los Angeles, City of Los Angeles, municipal cities in Los Angeles County and utility providers and coordinates with Metro Third-Party Administration group to ensure that the approach to reimbursement, compensation, or betterments adheres with Metro policies and is consistent with other Metro projects.

3.4.9 Facilities Capital Projects

3.4.9.1 Overview

The Facilities Capital Projects (FCP) Section is responsible for all vertical construction and capital improvements for Metro's bus and rail facilities, including 20 bus and rail operations and maintenance facilities and 100's of passenger stations throughout Los Angeles County. The Section supports other capital projects with construction and design support for projects not directly

managed by the Section. The FCP is also responsible for management and coordination of all joint development projects at Metro stations, for engineering support and design work for Facilities Maintenance and General Services at facilities and headquarters, and technical support for sustainability projects. The Section assists in other major rail programs and planning with management of their rail facility projects, such as the yards, new stations, etc.

3.4.9.2 Mission, Organization and Key Functions

The mission of the Facilities Capital Projects is lifecycle management and delivery of capital improvement projects within the approved budget and schedule. The primary objective of the Section is to provide the technical support required to deliver on this mission, to complete design and construction projects in an efficient, effective, and fiscally prudent manner, and to ensure that these projects are in conformance with goals and objectives of Metro's customers.

The Facilities Capital Projects Section self performs the vast majority of design, engineering, and construction oversight works. The Section's professional engineers and architects in each major discipline have the ability to complete design work from preliminary engineering to final design. The smaller construction oversight projects are staffed using internal field construction resources. Design and construction management consultants are utilized for larger and more complicated design and construction projects.

3.4.10 Environmental Compliance and Sustainability (ECS)

3.4.10.1 Overview

The Environmental Compliance and Sustainability (ECS) Section provides general support services to Metro's Planning, Construction, and Operations Business units. There are currently three distinct business functions provided by ECS Section to include:

- Environmental Services (including compliance, remediation, and liabilities reduction);
- Sustainability Services (including Policy Implementation, Environmental Management System, and Carbon Credits Administration); and
- Project Management of Sustainability Related Projects/Infrastructure.

Figure 9 shows all of the environmental, sustainability, and project management functions of the ECS Section. Figure 10 provides another view of how the Section functions in relation to various business units within the Metro's Planning, Construction, and Operations. ECS Section also interfaces with departments to plan, execute and maintain initiatives and programs including those related to real estate, environmental liabilities (Accounting and Risk Management), products and commodities (Vendor and Contract Management), revenue generation and cost-savings (Treasury/Office of Management and Budget), outside funding opportunities/cost-savings and incentives (Accounting and Grants Management) and installation of new technology and cost-saving measures such as energy management systems, electric vehicle chargers, digital and lighting projects, and the like (Parking Management, Operations, and Facilities Maintenance). Department staff assist in public interface and meetings specifically on environmental mitigation issues, cultural and paleontological resources challenges, and media and technical interface regarding environment, sustainability, and resource conservation issues.

Figure 9: ECS Section Responsibilities

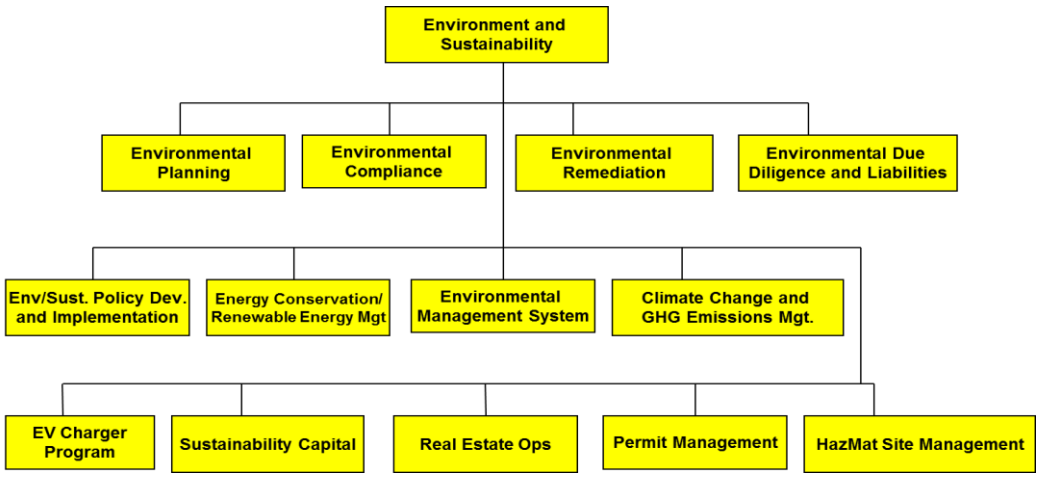
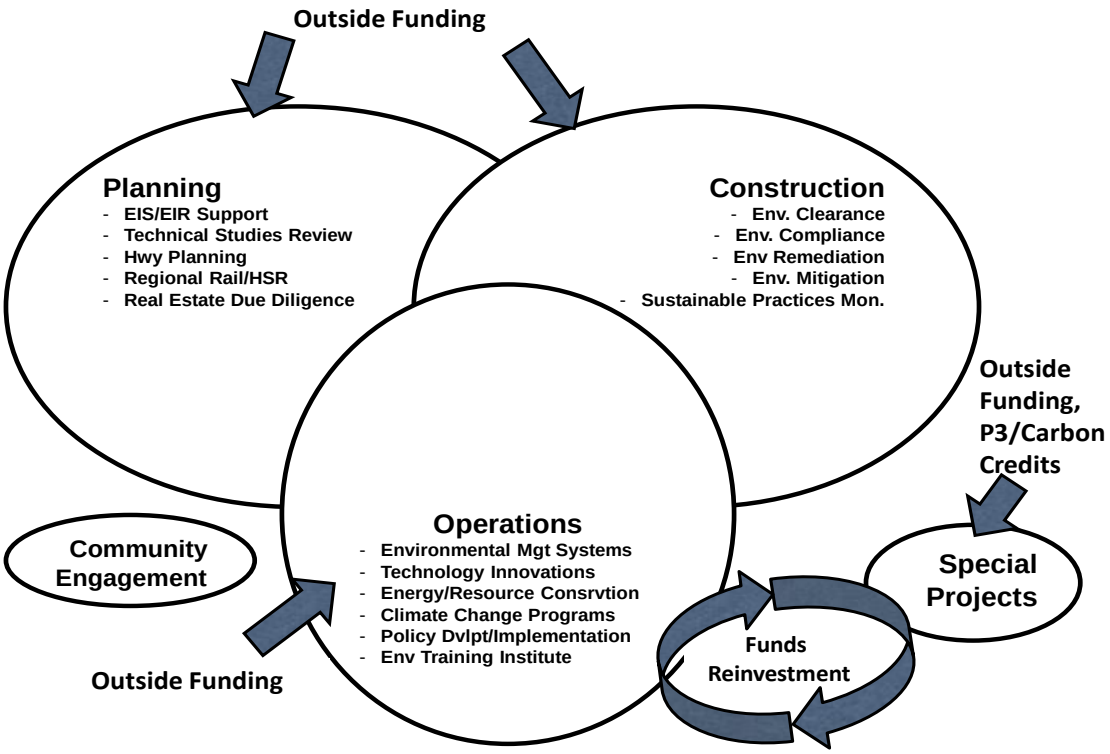


Figure 10: Cross-Functional Coordination through ECS Section



ECS Section also provides project-level services to the following efforts:

- Major Transit Project Design and Construction
- Environmental Management System
- Energy Management Program
- Climate Change Management
- Carbon Credits Administration
- Electric Vehicle Charger Pilot Program
- Sustainability Capital Program to include Renewable Energy/Lighting and Energy Efficiency
- Sustainability Policy Implementation.

ECS Section has been given authority by the Metro Board to sell Carbon Credits and to capture revenues from such sales as funding to implement sustainability-related infrastructure; as well as fund operations and maintenance efforts related to such infrastructure. Cost-savings, incentives, and rebates are also to be captured as sources of funding (through a life-cycle framework) to fund such efforts.

ECS Section has been providing support to the:

- Construction Phase expansion and construction compliance support for major transit projects;
- Environmental Clearance (and eventually, environmental compliance monitoring during construction) of New Major and Small Capital Projects, the Union Station Master Plan, and Capital Improvement Projects, Joint Development;
- Support of the Regional Rail and Highway Programs;
- New consulting management strategy (five contracts instead of one for Environmental Engineering and Sustainability Support Services);
- Fresh funding from the Federal Government, State and private and benefit corporation investors [as Public Private Partnership arrangements] for Sustainability-Related Infrastructure such as renewable energy, lighting retrofits, electric vehicle chargers, and new materials use for operations (e.g., bus and rail car cleaning), and low impact development strategies;
- Implementation of Projects for agency resiliency (to extreme weather events and emergencies) and Integrated all Hazards Security Planning and Implementation (in partnership with Metro Risk Management and Operations Strategic Planning);

- Completion of agency-wide Environmental Management System implementation at all Operating Divisions. This paves the way for increased frontline process innovation and increased environmental compliance and awareness (new capital improvement projects and training);

- Biomethane Plan Implementation;

- Carbon Credit Generation and Funds Administration; and

- Operations and Maintenance coordination of Green and Renewable Energy infrastructure projects (in coordination with Metro Operations and Maintenance).

ECS Section currently oversees environmental and sustainability-related Task Order based Contracts. These are quantity/indefinite delivery contracts that are designed to be readily available and scalable depending on the project needs.

In addition, ECS Section staff currently oversees sustainability-related capital improvement projects. These are expected to exponentially grow in the next five years as ECS Section continues its retrofit and Leadership in Energy and Environmental Design (LEED®) programming of all existing buildings, builds Metro's Renewable Energy portfolio to meet the agency's 2020 Renewable Energy goal, expands its resource management and water conservation program, continues the implementation of recycling and recovery projects, and addresses new needs identified through the continual improvement process of an agency-wide Environmental Management System.

3.4.10.2 Lifecycle Project Management

The following outline provides an overview of the services provided by ECS Section in the planning, construction, and operations of assets. . Additional functions are defined by project needs and are updated concurrent with new California Green Building Code requirements, Federal and State requirements, local ordinances and building codes, and industry best management practices.

Planning

- Provides support in all phases of the Planning of capital projects

- Provides ground level technical advice in the Technical Studies for environmental clearance

- Oversees the environmental assessment of parcels for property acquisition

- In house expertise in the review of sustainability related elements of proposed project

- Environmentally clears projects if level of clearance is Categorically Excluded or Categorially Exempt project

- Conducts or assists life-cycle analysis of sustainability related infrastructure or for sustainability elements of the project

Construction

- Monitors the environmental commitments as defined in the mitigation measures monitoring program

- Provides oversight of the environmental compliance and sustainability of the project to all statutes, regulations, and ordinances
- Approves all environmental requirements proposed and products used in the project as defined in the design criteria and specifications
- Works with the contractor in defining sustainability commitments through the project-specific Sustainability Plan
- Monitors or conducts the sustainability commissioning process

Operations

- Through the Environmental Management System, ensures compliance with all legal and other requirements
- Conducts retrofits of existing assets to comply with evolving statutes, regulations, ordinances, or to ensure a state of good repair
- Provides support in monitoring and verification of environmental benefits throughout the life of asset
- Oversees the reduction of environmental liabilities through GASB 49 process

A project specific Sustainability Coordinator is a requirement for all Metro construction projects per the Sustainability Plan. Currently, the project level Sustainability Coordinator role is met through Metro consultants. The Executive Officer, Environmental Compliance and Sustainability currently provides oversight in the overall implementation of all Sustainability Plans for all projects; acts as the EMS Administrator; and provides review and approval in all projects of any scale for the inclusion of sustainability strategies in any stage of a project or maintenance of an asset.

If passed by the voters, Measure M will provide a new funding source that could provide a resource for additional full time staffing to implement the coordination, design, installation or construction, operation and maintenance of current and future sustainability-related projects on capital infrastructure, including the consideration of a Metro Sustainability Officer.

ECS Section's role in Measure M will be evolving in the context of new statutory, regulatory, and related requirements. Section 1.6.8 outlined many of these evolving trends in the context of the Board approved Item #57 on Sustainability Strategies.

3.4.11 Key Positions

3.4.11.1 Chief Program Management Officer - Manages Highway Project Delivery, Transit Project Delivery and Regional Rail programs, and provides policy recommendations, technical advice and information to the Chief Executive Officer and Metro Board on matters related to Metro's transit and highway design, construction projects and on regional rail, and provides overall direction in the management, studies, investigations, and analyses of major capital engineering and construction projects at the direction of the CEO and Board of Directors, including reports of findings and recommendations. The Chief Program Management has overall management responsibility for the Program Management Department and reports to the Chief Executive Officer.

3.4.11.2 **Deputy Chief Program Management Officer** – Is responsible for the day to day oversight of all activities and projects for Transit Project Delivery, Highway Project Delivery and Regional Rail Programs; assists with departmental organizational issues, resources and goal setting; monitors implementation for adherence to departmental and project goals and objectives, policies, work standards, lessons learned and initiatives to improve performance. Assists with coordination, cooperation and communication among internal and external stakeholders and agencies. The Deputy Chief Program Management Officer reports to the Chief Program Management Officer.

3.4.11.3 **Senior Executive Officer, Program Control** - Is responsible for coordinating program control oversight activities with all Metro resources throughout the life of each project, establishing best practices for program control and delivery, providing program-wide reports on project status to project participants as well as the Metro Board, external agencies and the public, and providing an impartial early warning of issues and risks, which may impact the budget or scheduling issues on a project. The Sr. EO Program Control is also responsible for overseeing cost estimation, cost engineering, schedule control and configuration management for projects, and establishing consistent standards and tools across Metro. The Sr. Executive Officer Program Control reports to the Chief Program Management Officer.

3.4.11.4 **Executive Officer, Finance and Administration** – Is responsible for oversight, developing, implementing, and administering the operating and capital budgets, as well as the administrative responsibilities and financial management for all Program Management departments. Other responsibilities include administration of the labor management, cash flow projections, human resource allocations/recruitments, computer information technology, program wide Key Performance Indicators, audit liaison and assisting with the Board Report process to deliver efficient and cost effective services to the user community in support of Metro's projects. The Executive Officer, Project Control and Administration reports to the Chief Program Management Officer.

3.4.11.5 **Senior Executive Officer, Project Management (Regional Rail Program)** - Is responsible for providing overall coordination, management, and the programming of funds for Los Angeles County Metropolitan Transportation Authority's (Metro) commitment to the commuter, intercity, and high speed rail networks serving Los Angeles County. I also manage capital improvement projects along the Metro owned commuter rail right-of-way. The Sr. Executive Officer, Project Management (Regional Rail Program) reports to the Chief Program Management Officer.

3.4.11.6 **Executive Officer, Project Engineering** - Is responsible for managing support services for design and construction of heavy rail, light rail, bus and rail maintenance facilities and rapid bus transit projects, and e**n**sures all design and construction activities meet operations and maintenance quality standards and expectations. The Executive Officer Project Engineering directly manages the following departments: Third Party Administration, Quality Management, Project Engineering and Systems Engineering. The Executive Officer Project Engineering is responsible for assigning full time and part time staff to support the Regional Connector Transit Corridor Project and reports to the Deputy Chief Program Management Officer.

3.4.11.7 **Executive Officer, Environmental Compliance and Sustainability (ECS)** - Is responsible for providing, through a matrix relationship, functional Environmental Compliance and Sustainability support to all Planning, Construction, and Operations and Maintenance projects and initiatives through recruiting, training and managing Environmental Specialists who advise and work with project staff on applicable local, state, and federal laws, rules, and regulations and ordinances related to toxic substance control, hazardous materials and hazardous waste management and other environmental compliance and remediation issues; and ensure that project environmental and sustainability commitments including mitigation measures as specified in the FEIS/FEIR are followed through and incorporated and implemented in all levels of project activities. Environmental Compliance requires the establishment and adjustments (when necessary) of specification requirements for the project contracts involving any environmental impacts and potential impacts to archaeological/paleontological resources; commitments regarding Metro Environmental Policies, new and emerging statutory, regulatory, and code requirements or if based on agreements with cities and special jurisdictions the implementation of new requirements. The EO, ECS also provides the project all necessary resources to ensure that Contractor commitments in the project Sustainability Plan are implemented; Board Policies and agency-wide sustainability principles are adhered to; and project specific sustainability-related criteria and specifications are fulfilled. The EO, ECS is also the Environmental Management System Administrator and provides guidance and oversight in the implementation and resource allocation of environmental compliance and sustainability activities at Metro's operating divisions. Metro does not have a Chief Sustainability and Environmental Officer, and the EO, ECS's function is currently the surrogate for such a position. Related to the aspirations of the Board Motion Item #57, overall agency-wide coordination of sustainability efforts will be revisited in the future after the passage of Measure M. The EO, ECS reports to the Deputy Chief Program Management Officer.

3.4.11.8 **Executive Officer, Capital Projects** – Is responsible for the overall direction and supervision of the Capital Projects department. Ensures that all design and construction projects are completed in conformance with Metro policies and procedures and within the expectations of Operations partners. Responsible for completing all projects within the approved schedule and budget. Reports to the Deputy Chief Program Management Officer.

3.4.11.9 **Senior Executive Officer, Highway Program** - Sets the organization's structure, policies and procedures, short- and long-range goals and objectives, work plan, and project priorities, and assigns staff's roles and responsibilities. Leads the Highway group's efforts in development of Metro's Long- and Short-Range Plans, preparation of the Agency's budgets, support of countywide sales tax measures, preparation of regional transportation plans, sub-regional and multi-agency coordination, and other activities as necessary. Directs the management of locally funded projects and programs. Directs efforts to secure local, state, and federal funding for Metro's present and future capital and operating budgets. Represents Metro at regional, State, and national transportation forums.

3.5 VENDOR/CONTRACT MANAGEMENT DEPARTMENT

3.5.1 Overview

The Vendor/Contract Management Department (V/CM) has the responsibility to procure goods and services for Metro at a fair and reasonable price while exercising good business practices and the post award administration for contract compliance. V/CM conducts all procurement transactions in accordance with the latest revisions of the Metro Acquisition Policy and Procedures, the FTA Master Agreement, FTA Circular 4220.1, the FTA Best Practices Manual for any procedures and practices identified as mandatory, FHWA regulations, various state and local laws and regulations, which are incorporated by reference in the Acquisition Policy Manual approved by the Metro Board of Directors.

Metro's Vendor Portal (Metro/Business.net) links contractors, vendors, small businesses (Disadvantaged Business Enterprise/Small Business Enterprise/Disabled Veteran Business Enterprise (DBE/SBE/DVBE)), medium size businesses, and suppliers to all necessary information for contracting opportunities, how to do business with Metro, and requirements for all solicitations.

In procuring goods, equipment and services, Metro follows the procedures in its Acquisition Policy and Procedures Manual using either a simplified procurement process for a dollar amount between $2,500 and less than $100,000, or a formally advertised process for amounts equal to or greater than $100,000. All construction contracts over twenty-five thousand dollars are competitively bid.

Contracting methodologies for services and construction are currently identified by California legislation:

- Public Utilities Code (PUC) 130232 – the purchase of supplies, equipment, materials, and construction of facilities and works by lowest competitive bidding;

- PUC 130238 – for specialized rail transit equipment, including rail cars, and computers, telecommunications equipment, fare collections equipment, microwave equipment and other related electronic equipment and apparatus, by lowest competitive bidding or, after finding by a two-thirds vote of the Board of Directors, by competitive negotiation;

- PUC 130242 – for a combination of all or some of the planning, design, permitting, development, joint development, construction, construction management, acquisition, leasing, installation, operations, maintenance, and warranty of all or components of (1) transit systems, including, without limitation, passenger loading or intermodal station facilities, and (2) facilities on real property owned or to be owned by the authority, after a finding by a two thirds vote of the Board of Directors that awarding a contract under this section will achieve certain private sector efficiencies in the integration of design, project work and components; by either lowest competitive bidding or by a competitive bidding process that employs objective selection criteria in addition to price;

- Public Contract Code (PCC)22160 – 22169 Local Agency Design-Build Projects - for a transit capital project, that does not include highway construction or local streets and road projects, by a best value procurement methodology;

- Government Code 4525 – 4529.5 for contracts with private Architects, Engineering, Land

Surveying, and Construction Project Management firms, including landscape architectural and environmental services on the basis of demonstrated competences and on the professional qualifications necessary for the satisfactory performance of the services required, where price is not a selection factor.

- Government Code 5956 – 5956.10 - utilize private investment capital to study, plan, design, construct, develop, finance, maintain, rebuild, improve, repair, or operate, or any combination thereof, fee-producing infrastructure (Public Private Partnership projects) facilities pursuant to a competitive negotiation process. "Fee-producing infrastructure project" or "fee-producing infrastructure facility" means the operation of the infrastructure

- project or facility will be paid for by the persons or entities benefited by or utilizing the project or facility.

Workshops and Industry Reviews are scheduled as desired or as deemed necessary, and depending on the complexity of the project, usually six to 18 months prior to the issuance of the formal solicitation to accommodate and facilitate the success of any of the above solicitations, as well as to conduct outreach events with the small business communities to participate on any solicitation.

3.5.2 Diversity and Economic Opportunity

3.5.2.1 Small and Disadvantaged Business Enterprise Participation

Every three years Metro establishes with the FTA an overall disadvantaged business enterprise participation goal. For non-federally funded projects Metro has a 30% SBE participation goal, included in that goal is a 3% Disabled Veteran Business Enterprise goal. Metro's Diversity and Economic Opportunity (DEO) Unit will evaluate the scopes of work/services for every federally funded contract and non-federally funded contract for construction over $25,000 and all other contracts/purchase orders over $100,000 (which amount may be increased in future years to agree with federal low dollar threshold guidelines) to establish appropriate DBE/SBE/DVBE participation goals or SBE Prime (set-aside for contracts under $5,000,000) opportunities. Currently all proposing entities for non-federally funded contracts must evidence meeting or exceeding those goals as a condition of award; Metro is seeking approved legislation requiring the same for all low bid procurement actions. Bidders/Proposers on federally funded projects would still be eligible for an award if they don't evidence in their bid/proposal meeting or exceeding the goals but do meet the requirements of Good Faith Efforts.

3.5.2.2 Project Labor Agreement / Construction Careers Policy and Local Hire Initiative

All construction contracts (Design-Bid-Build (DBB), Design-Build (DB), Design-Build-Operate-Maintain (DBOM), Public-Private Partnership (P3), etc.) that exceed $2,500,000 shall be subject to Metro's Project Labor Agreement and Construction Career Policy. Projects that do not include federal funding will be subject to Metro's local hire program, as well as federally funded projects where the applicable federal agency has approved the local hire program for each contract. Rolling Stock procurements, if approved by the applicable federal agency, may also include local hire requirements.

3.5.2.3 Labor Compliance and Contractor Registration with California Department of Industrial Relations

All contracts, including contracts for professional services, that utilize labor classifications subject to the requirements of California Prevailing Wage laws, the Davis-Bacon Act, or Metro Living Wage Policy are subject to monitoring and review by Metro DEOD's labor compliance group. All construction contracts shall be regularly monitored by Metro staff or consultants for compliance with the applicable wage laws or policy referenced above. In addition all contractors, consultants, subcontractors, sub-consultants utilizing such labor classifications (including the prime contractor/consultant to any subcontractor/sub-consultant at any tier, even though they do utilize such labor classifications themselves) must be registered with the California Department of Industrial Relations (DIR) to be eligible for an award, which V/CM must confirm, and the awarded contract must be reported to the DIR within 5 days from the award.

3.5.3 Equipment and Services Procurements

3.5.3.1 Equipment Procurement

Heavy Rail Vehicles, Light Rail Vehicles, and bus requirements to support any project will be identified and procured under separate contracts. The required number of vehicles will be based upon Operation's Fleet Plans and the requirements of the recommended and approved Locally Preferred Alternative (LPA) for each project.

Specification requirements for vehicle performance, reliability and warranty will be consistent with good industry practice and current industry standards. These should also be consistent with regulatory directives and statutes to reduce environmental and greenhouse gas emissions impacts. Streamlined vehicle shapes and appearances will be addressed by seeking alternate ideas; one for any vehicle meeting the physical requirements and one for vehicles having a streamlined shape and appearance similar to recent vehicle designs for Los Angeles is desired if the cost difference is reasonable.

The contract will be managed by a combination of Metro staff and consultant support. A Metro Operations staff person will serve as the Project Manager for all phases of the procurement and as the Resident Engineer during the contractor design, manufacturing, and delivery phases. This position will be supported by Metro staff from Vendor/Contract Management, Engineering, Program Management, Systemwide Safety, Quality Assurance, and Vehicle Maintenance, supplemented by consultant staff for in-plant inspection and technical specialties for response to Request for Information (RFI) and review of contractor submittals.

Other equipment, that may be "Owner Supplied" to a contractor will be determined during the engineering design phases of the project and purchased in accordance with Metro Procurement Policies and Procedures.

3.5.3.2 Construction Contracts

A procurement acquisition plan will be developed for the various construction contract solicitations identifying the schedule, type contract, and procurement methodology. A Source Selection Plan (SSP) will be developed for complex construction contracts and will detail the procurement methodology, schedule, evaluation criteria (if applicable), streamlining methods (if applicable), and the type of contract most advantageous for the project delivery method. Solicitation(s) and

contracting will be in accordance with Metro Procurement Policies and Procedures and applicable California Code(s). Metro shall publicize all requirements for maximum competition.

State laws applicable to the Design/Build (D/B) project delivery method allow both sealed bidding and negotiated procurement processes, under certain circumstances. Under sealed bidding the award will be made to the lowest priced responsible and responsive bidder and under a negotiated procurement the award will be made to the responsible and responsive proposer that provides the best value to Metro.

State law applicable Design/Bid/Build (D/B/B) project delivery method requires sealed bidding and award will be to the lowest priced responsible and responsive bidder.

State law applicable to a P3 project delivery provides for a negotiated procurement process and the award will be made to the responsive and responsive proposer that provides the best value to Metro.

3.5.3.3 Professional Services Contracts

These services include Architectural/Engineering, project management assistance, construction management, feasibility studies, preliminary engineering, final design engineering, surveying, mapping, artist, environmental and sustainability services, staff augmentation, and any other consultant type services. A negotiate procurement process shall be the methodology to obtain these services. Metro shall publicize for maximum competition.

3.5.4 Procurement Methodologies

3.5.4.1 Invitation for Bids (Sealed Bidding)

State laws applicable to Metro require the use of sealed bidding, also known as Formal Advertising, under almost all circumstances for purchasing supplies, material, and equipment contracts estimated .3to cost over $100,000 and public works construction contracts estimated to cost over $25,000. In order for sealed bidding to be most effective, the following conditions need to be present:

- A complete, adequate and sufficient scope of work, specifications and drawings;
- Adequate competition available in the marketplace (two or more responsive and responsible bidders to compete); and
- The scope lends itself to a firm fixed price contract.

Under sealed bidding the award will be made to the lowest priced responsible and responsive bidder.

Bid Documents

Bid documents include a description of the supplies or services required, any drawings, specifications, or plans that describe the nature or quality of the work to be performed. The documents also contain any schedule or milestone data, as well as procedural documentation relating to the bid process. A contract document is provided with general and special terms and conditions to allow full and open competition.

Pre-Bid Conference questions, as well as questions received during the solicitation period are addressed and any modifications to the bid documents that are deemed appropriate are formally issued to all "plan holders" as amendments to the solicitation.

3.5.4.2 Requests for Proposals (Competitively Negotiated)

A Request for Proposals (RFP) shall be the solicitation method used to communicate Metro's requirements to prospective contractors when the negotiated method seeking competitive proposals is used. Each RFP shall conform to the uniform contract format approved by Metro. The Contracting Officer shall issue written solicitations which contain all information necessary to enable prospective contractors to prepare and submit proposals properly.

The Contracting Officer shall furnish identical information concerning a proposed procurement to all prospective contractors receiving the RFP. In determining sources to solicit, the Contracting Officer shall use all means available to ensure, through advertising and various other methods of notification, that an adequate number of potential qualified proposers receive the solicitation in order to obtain maximum open competition.

Competitively negotiated procurements fall into three general categories:

- Professional Services contracts for Non-Architectural/Engineering (A/E) Services; and miscellaneous service contracts;
- Architectural/Engineering services; and
- Specialized rail equipment, computers, telecommunications equipment, microwave equipment and other related electronic equipment and apparatus.

Proposal Documents

The solicitation documents shall be in RFP format for competitively negotiated procurements. The RFP documents at a minimum shall identify the evaluation factors (non-technical, technical, and price) and their relative weight of importance for evaluating proposals submitted.

Pre-Proposal Conference questions, as well as questions received during the solicitation period are addressed and any modifications to the solicitation documents that are deemed appropriate are formally issued as amendments to the solicitation.

3.5.5 Bonding

Metro's bonding requirements, consistent with FTA bonding requirements, are summarized as follows. Bid guarantees are obtained for sealed bids, however Payment and Performance bonds are obtained for all construction / public works contracts regardless of the procurement methodology.

- Bid Guarantee — When contracts go to bid, under a sealed bidding process, each bidder is required to provide a bid guarantee equivalent to 10 percent of its bid price. The "bid guarantee" must consist of a firm commitment such as a bid bond, certified check, or other negotiable instrument accompanying their bid to ensure that the bidder will honor its bid if accepted.

- Payment Bond — In accord with California law the Contractor or Concessionaire is required to obtain a payment bond for 100 percent of the contract price. A "payment bond" is required to ensure that the Contractor will pay all people, vendors, subcontractors, and sub-consultants supplying labor and materials for the contract.

- Performance Bond — The Contractor or Concessionaire is required to obtain a performance bond for 100 percent of the contract price. A "performance bond" is required to ensure completion of the Contractor's or Concessionaire's obligations and the Work under the Contract.

3.5.6 Insurance

Vendor/Contract Management will coordinate with Metro Risk Management to establish the insurance requirements for each and every contract, with the details included in the contract Special Provisions. In general a Contractor Controlled Insurance Program (CCIP) is set forth in Metro contracts. However, the Contractor is not obligated to provide all insurances for its subcontractors; the subcontractors may be required to provide their own insurances. Metro and other parties identified in the contract are to be named as insureds on the Contractor provided insurance policies. The insurance coverage, as required by Risk Management, includes Worker's Compensation/Employers Liability, Commercial General Liability, Automobile Liability, Excess Liability, Builders Risk, Contractor's Pollution Liability, Environmental Liability, Earthquake, and Professional Liability.

3.5.7 Contract Administration

Specific contract administration procedures are primarily contained in the Contract Terms and Conditions. The roles and responsibilities of Metro and the Contractor, related to the contract, are also addressed and differ with the type of project delivery method – Design-Bid-Build, Design-Build, Design-Build-Operate-Maintain, Design-Build-Finance-Operate-Maintain or Public-Private Partnership. The roles and responsibilities of Metro representatives are delineated on the written Notice to Proceed issued to the Contractor. On those projects where an Integrated Project Management Office is established the contracts exclusive to the project will be administered by Contract Administrators at the Integrated Project Management Office (IPMO). All contract administrators will follow Metro's Acquisition Policy and Procedures, and will report directly to the Vendor/Contract Management Department.

Examples of contract administration procedures that are addressed in the Terms and Conditions are:

- Change Management
- Document Control
- Schedule Management
- Small business participation

- Prevailing Wages
- Progress Payments and Invoicing
- Retention (minimum of 5% for construction contracts) and Withholdings
- Claims Management
- Dispute Resolution Processes
- Inspections
- Substantial Completion
- Final Acceptance

The Contracting Officer for a contract is the delegated V/CM Contract Administration staff assigned to the contract. The Project Director/Manager is typically named as the designated authorized representative for all correspondence and implementation of the contract and the Contract Administrator for all commercial issues and interpretations of the contract. On construction contracts the roles and responsibilities of the Contracting Officer and Project Director/Manager are included in the written Notice to Proceed issued to the Contractor.

The Metro Acquisition Policy and Procedures contain procurement guidance for all construction, professional services, equipment, and material procurement contracts. These documents, in addition to Construction Management Procedures and the RE Manual, delineate approval levels and processes for procurement transactions including changes orders and modifications. The Acquisition Policy and Procedures manuals shall take precedence in the event of a conflict with Construction Management Procedures and/or the RE Manual.

3.5.8 Payments, Retention and Withholdings

The contract terms and conditions provide the details for submitting payments under the contract, including applications for progress payments, milestone payments, etc. The contract shall specify any retention requirements and the ability of the contractor to substitute securities in lieu of retention. The contract terms also includes provisions for liquidated damages, special assessments and other withholdings.

3.5.9 Dispute/Conflict Resolution and Claims Mitigation

Metro's policy is to resolve all disputes and claims with contractors at the lowest authority level subject to the appropriate management approval, by clearly identifying issues of dispute and negotiating fair and equitable settlements/resolutions. The Program Management and Vendor/Contract Management work collaboratively to facilitate the policy. Claims and disputes most often arise on construction contracts utilizing Design-Bid-Build or Design-Build delivery methods. Although there is no one entity that has overall management responsibility for conflict resolution, the Metro Director of Contract Administration assigned to the project is responsible for establishing the dispute resolution program on the project.

The objective of conflict resolution as described by this section is to initiate action which mitigates conditions that may result in disputes and claims submitted by professional services, construction, equipment, and materials contractors. These actions are implemented during both design and construction phases of the project. This section also addresses resolution of disputes should these issues become un-resolvable by the contract modification/change order process. Contract General Conditions allow the contractor to claim damages or delays, provided adequate notice and documentation are furnished. To mitigate a potential claim, it is essential that Metro recognize any situation of potential claim and, where possible, take steps to avoid it or provide complete documentation of the event causing the claim before and after conditions occur. The contract documents also include articles that recognize claims and provide for equitable resolution.

The Federal Transit Administration (FTA) has a vested interest in the settlement of disputes, defaults, or breaches involving any federally assisted third party contract. Metro must comply with the project administration and management guidelines of FTA Circular 5010.1D and 4220.1F in processing contractor claims against federally funded contracts. Metro shall also comply with the requirements of California Public Contract Code Section 20104, and the Metro Acquisition Policy, and Acquisition Procedures. Nothing stated herein relieves Metro of its responsibility to comply with those requirements.

Project personnel are required to understand respective responsibilities, contractual rights, and obligations of all related parties. Additionally, project personnel must fully appreciate how failure by any of the parties to meet respective obligations can result in delays and/or damages to the other parties.

Many tasks or activities necessary to mitigate claims are to be performed concurrently during pre-construction and construction phases of the project. All major construction contracts include a clause for Escrowing Bid Documents, Partnering, and Alternative Dispute Resolution.

3.5.9.1 Claims and Disputes Submittals

A contractor must, to submit a claim or dispute, meet all requirements set forth in the Contract General Conditions, for Notice of Intent to Claim; Submittal of Claims; and Disputes. The contractor may request additional time and compensation for work through a Request for Change (RFC). Any RFC which has merit and is approved by Metro is processed as a change order or contract modification. If the request is denied and the contractor believes the request has merit, the contractor may submit a Notice of Intent to Claim and Claim.

The contractor's claim must be submitted within 60 days of the occurrence of the claim event and must include sufficient detail to enable Metro staff to evaluate and determine the basis and the magnitude amount of the claim in terms of time and/or money. Entitlement for each of the issues as well as cause and effect must be clearly shown.

If the contractual notice requirements are not met by the contractor, the claim is rejected. In addition to the legal and contractual requirement, if proper notice is not given by the contractor, Metro Vendor/Contract Management will not recognize that a claim has merit. Receipt of claim notification is acknowledged by Metro without an opinion regarding the contractor's allegations.

The contractor and subcontractors are responsible for furnishing, when requested by Metro, further information and details required to determine the facts or contentions involved in the claim. Claims for time extensions must include a revised construction schedule showing effects of the delay and proposals to minimize these effects. Support data for any claim involving a time extension is

submitted within 60 days of the occurrence of the claim event. This data shall be updated at intervals not to exceed 30 days. No claim is considered after final payment is made.

3.5.9.2 Claims/Disputes Resolution

The Resident Engineer (RE) and the Contract Administrator (CA) in the field have a lead responsibility to mitigate disputes. If the RE and CA cannot settle a dispute by negotiating and issuing a change order and the dispute results in a claim, the claim is reviewed and evaluated by the Project Director/Manager, the Director of Contract Administration and if necessary a claims consultant, in accordance with the California Public Contract Code Section 20104 et seq. If at all possible the claim is settled at this level with a subsequent change order.

If the team and the contractor are unable to settle the claim Metro and the Contractor may agree to elevate the dispute up an escalation ladder of executive management within Metro and the Contractor. The parties may agree to submit a claim to an alternative dispute resolution process. Contract terms allows for one of the following as an alternative dispute resolution process:

- Mediation
- Arbitration
- Dispute Review Board

Metro prefers the use of a Dispute Review Board. If satisfaction is not reached through Alternative Dispute Resolution (ADR), which is a means for settling a dispute, including arbitration, mediation, or any other recognized procedure(s) voluntarily used to resolve issues, or the California Public Contract Code (CPCC) Section 20104 et seq. process, Metro and the contractor's only remaining recourse is judicial review.

Metro is also required by the provisions of Sections 20104 et seq. of the CPCC to adhere to certain procedures in resolving disputes (in particular "claims") in two (2) cost categories.

1) Claims for less than $50,000.

2) Claims for more than $50,000 but less than $375,000.

The provisions of CPCC Section 20104 et al are procedurally interpreted by Metro in the General Conditions and Special Provisions of the contract documents. Each cost category of claim has its own procedure of resolution.

The ADR process basically provides for non-binding resolution of a claim, unless the parties agree, subject to Metro Board of Directors approval, of a binding resolution through the ADR process. By law and by contractual provision these resolution measures must be procedurally exhausted prior to either party having the right to file suit in a court of competent jurisdiction. Any dispute may be resolved by both parties agreeing to drop the issue(s) or by a bilaterally executed change order.

3.5.9.3 Metro Claims of Errors and Omissions

Vendor/Contract Management, in collaboration with Program Management, is responsible for managing the evaluation, claim submittal with the assistance of Risk Management, and resolution

process for Metro originated claims for recovery of costs resulting from designer errors and omissions. All contract changes are evaluated for error and omission cost recovery potential as part of the change evaluation process. Change order tracking records includes data identifying those changes, which provide the basis for a potential error and omission claim. Such changes may be further reviewed by a Metro Architectural & Engineering Review Board (AERB) to identify the technical basis for, and administrative feasibility of, pursuing an errors and omissions claim. The AERB is typically made up of Metro staff at a Director level or above from Vendor/Contract Management, Program Management, Engineering, Construction Management, Risk Management, and General Counsel. The primary function of the AERB will be to provide a comprehensive intradepartmental evaluation of the factual data pertaining to the actions of design, construction management, and environmental consultants engaged in the performance of work for Metro. To the fullest extent possible, alternate disputes resolution methods are employed to settle design issues and avoid costly and protracted claims. The AERB prepares and submits the appropriate claim documents and conducts any necessary negotiations with the design firm and/or their insurers to resolve the claim.

3.5.10 Closeout of Contracts

A contract is physically complete only after all articles and services called for under the contract, including such related items as reports, spare parts, and exhibits, have been delivered to and accepted by Metro, including those articles and services for which no specific compensation may have been stipulated. A contract is administratively complete when all payments have been made and administrative action accomplished.

Metro staff and appropriate consultants shall obtain all necessary documentation to ensure that: (1) all deliverables and/or services including any reports required under the contract have been received and accepted; (2) the terms and conditions of the contract have been complied with; (3) disposition of accountable property under the contract has been accomplished; (4) a final audit (cost type contracts), when appropriate, has been performed and all questioned costs have been resolved; (5) the final voucher for the contract has been certified and sent to the appropriate finance officer; (6) all subcontract payments have been made and Unconditional Releases received, and (7) all other necessary actions required to close the contract are completed and documented.

Every contract situation cannot be covered by a single closeout procedure because of the complexities of Procurement and contract activities. Therefore, the Contract Administrator will exercise judgment and discretion in the closeout of files for a completed contract in accord with the Metro Acquisition Procedures and RE Manual.

3.5.11 Metro's Pilot Business Interruption Fund

In October 2014, Metro's Board of Director issued Motion 57 that authorized the CEO to establish a pilot program for a special Business Interruption Fund (BIF) for "mom and pop" businesses located along the Crenshaw Line, the Little Tokyo area along the Regional Connector and Phase I of the Purple Line extension; and through Board authorization the program was expanded in December 2015 to support "mom and pop" businesses directly impacted by full street closures with a duration of six continuous months or greater such as the 2nd & Broadway segment of the Regional Connector transit rail project. The BIF provides financial assistance to qualifying small "mom and pop" businesses in the total amount of $50,000 or 60% of annual business revenue losses per business. Metro has developed Administrative Guidelines for the pilot program.

In keeping up with the Board authorization, Metro appropriates $10 million annually of eligible funds in support of the BIF for approximately eight years. The funding authorization is inclusive of the administrative costs associated with the implementation of the pilot program specifically for the designated transit rail construction projects: Crenshaw/LAX Transit Line, Phase I of the Purple Line Extension including Little Tokyo area and 2nd & Broadway segment of the Regional Connector.

Any foreseeable expansion of the program requires reassessment of capacity and resources including authorization through Metro's Board of Directors.

3.5.12 Support Documentation

ACQ-1 - Metro's Acquisition Policy Statement

ACQ-2 - Metro's Acquisition Procedures

CF-10: Change Control - Consultant Contracts

CF-14: Change Control – Construction/Procurement Contracts

FTA Circular 4220.1F (or later revision)

FTA Circular 5010.D

Construction Management Procedures

RE Manual

3.5.13 Key Positions

3.5.13.1 **Chief Vendor/Contract Management Officer** – Is responsible for leading Metro's Procurement Department including Procurement, Supply Chain Management and Client Services functions, establishing goals and major priorities, facilitating and monitoring progress, and directing the development of strategies and resolutions to major issues related to Procurement, Supply Chain Management, and Client Services programs, providing policy direction to assigned major functional areas, directing the establishment of goals, major priorities, and advising in the development of strategies and resolution of major problems, exercising the full breadth of authority through contract formation, partnering, administration, resolution of disputes and claims, recommending cost avoidance procurement methodologies to Project Directors/Managers and the CEO when appropriate. The Chief Vendor/Contract Management Officer reports to the Deputy Chief Executive Officer.

3.5.13.2 **Executive Officer, Vendor/Contract Management** – Manages, directs, and evaluates all Metro procurement activities, provides leadership, plans and sets priorities, implements agency-wide goals and objectives, and determines the most effective methods for carrying out the day-to-day and long-term procurement activities. Execute agency-wide contracting authority as delegated by the Chief Executive Officer. Exercises full breadth of authority through contract formation, partnering, administration, and resolution of disputes and claims. Takes a leadership role with

respect to performance and utilization of Metro's procurement resources. Formulates and implements procurement standards, procedures, and guidance in accordance with local, state and federal requirements; and provides assistance to manage the Metro Board Approved Procurement Policy and Procedures manual. Recommends cost avoidance procurement methodologies to Project Directors/Managers and the CEO when appropriate. Directs the coordination of programs with Equal Opportunity to increase participation of Disadvantaged Business Enterprises, Small Businesses, Disabled Veteran Business Enterprises, and ensures compliance with targeted goals. Provides for continuous professional development training for all V/CM employees. Consults and advises management staff and the Board of Directors in procurement or material management activities and issues. Advocates Metro's safety vision; approves and adopts the agency's safety rules, policies, and procedures; communicates safety expectations and maintains accountability for the safety performance of all subordinate employees. Manages department including developing, monitoring and adhering to Metro's policies/procedures, budget and achieving units goals and objectives. Contributes to ensuring that the Equal Employment Opportunity (EEO) policies and programs of Metro are carried out. This position reports to the Chief Vendor/Contract Management Officer.

3.5.13.3 **Executive Officer, Diversity and Economic Opportunity** - Directs, oversees and manages the implementation and administration of activities for Metro's Diversity & Economic Opportunity Department (DEOD), Disadvantaged Business Enterprise, Small Business Enterprise, and Minority and Women Business Enterprise Programs. Implements and oversees the Construction Careers Policy and the Project Labor Agreement for Construction. Oversees the enforcement of Metro's Labor Wage Compliance Program (Prevailing Wage and Living Wage) to ensure workers performing on construction projects are paid the appropriate predetermined prevailing wage rate. Oversees the implementation of an aggressive Small Business Outreach Program which communicates contracting opportunities and develops methods to facilitate small business participation in all contracting areas. Oversees and reviews all funding for various projects to determine the appropriate application of small business program requirements. Provides direction in the oversight of activities of Metro's Transportation Business Advisory Council (TBAC). Prepares and presents reports to the CEO, Board of Directors, and management regarding DEOD programs. Directs studies, investigations and analyses; presents oral and written reports of findings and recommendations to the CEO. Develops and maintains liaison with federal, state, and local transportation regulatory agencies in regards to small business and labor programs. Communicates Metro's safety vision and goals; oversees the implementation of agency and departmental safety rules, policies, and procedures; and maintains accountability for the safety performance of all subordinate employees. Contributes to ensuring that the EEO policies and programs of Metro are carried out. This position reports to the Chief Vendor/Contract Management Officer.

3.5.13.4 **Deputy Executive Officer, Procurement Administration and Policy** – Identifies and directs in-depth analyses of a broad range of problems affecting the mission of Procurement, including its relationships with other offices and departments of

Metro and develops recommendations to alleviate and resolve identified problems. Develops and implements goals, objectives, policies, procedures, compliance measures, budget and work standards for assigned functions, and monitors progress. Directs the development of procurement procedures, prepares and assists in the preparation of documents related to presentations to the CEO and the Board of Directors. Directs the development and maintenance of procurement performance indicators to assure productivity is properly measured and equitably evaluated. Develops and directs program for continuous professional development training for all procurement employees. Implements and monitors programs with regard to supervisory/managerial requirements for EEO plans, discrimination complaints, and special EEO program efforts where applicable. Develops and directs technical requirement for overall procurement management information system. Supervises the coordination and retention of procurement contracts, negotiation records and documents. Directs the activities of Vendor Services. Provides support to special projects. This position reports to the Chief Vendor/Contract Management Officer.

3.5.13.5 **Deputy Executive Officer, Procurement** - Directs activities of Supply Chain Management, including staffing policy direction, establishing goals, major priorities, and advising internal customers in the development of material management or procurement-contract administration strategies and resolution of major problems. Establishes procedures to ensure Metro procurement and related administrative functions conform to policies, procedures, laws and regulations including controlling expenses within approved time and budgetary constraints. Advises and assists the Chief V/CM Officer, DCEO and CEO on studies, investigations and analysis to assess current systems for commodity procurements or material management; recommendations for strategic changes necessary to improve and maintain standardized procedures and contract terms. Plans, schedules and procures products, goods, and services in accordance with approved procurement or material management needs. Directs the coordination of programs with Equal Opportunity to increase participation of Disadvantaged Business Enterprises, Small Businesses, Disabled Veteran Business Enterprises, and ensures compliance with targeted goals. Provides continuous professional development training for employees. Communicates Metro's safety vision and goals; oversees the implementation of agency and departmental safety rules, policies, and procedures; and maintains accountability for safety performance of all subordinate employees. Contributes to ensuring that the EEO policies and programs of Metro are carried out. This position reports to the Chief Vendor/Contract Management Officer.

3.6 GENERAL COUNSEL DEPARTMENT

3.6.1 Legal Services

Metro's General Counsel provides and manages legal services for Metro, including Metro's Program Management. Legal services related to Program Management include support of: (a) real estate matters including acquisitions, management of real property, and joint development; (b) employment; (c) insurance, (d) workers compensation, and risk management; (e) environmental matters, including CEQA and NEPA compliance; (f) planning; (g) procurement and contract administration; (h) construction; (i) labor; (j) intergovernmental agreements; (k) DBE/SBE/DVBE; (l) compliance and regulatory matters: (m) funding and financing issues, including grant management; and (n) operations, maintenance, and safety. In addition, Metro's General Counsel manages and supervises litigation to which Metro is a party.

3.6.2 Key Positions

3.6.2.1 County Counsel - Serves as Metro's General Counsel and reports directly to the Metro Board of Directors. As Metro's General Council, County Counsel provides legal advice to Metro management and supports all aspects of Metro. As Metro's General Council, County Counsel will provide and manage all legal services in support of Metro's Program Management.

3.7 RISK, SAFETY, EMERGENCY MANAGEMENT, & ASSET MANAGEMENT DEPARTMENT

This section of the Program Management Plan defines the roles and responsibilities of four major integrated functions that support all capital projects and are managed by the Enterprise Risk, Safety, and Asset Management Department. The Chief Risk, Safety, and Asset Management Officer reports directly to the Chief Executive Officer and is empowered and authorized to develop, distribute, implement and administer comprehensive programs in all areas under his responsibility to support the capital projects. The roles and responsibilities of each of these functions are described in the following sections.

3.7.1 Risk Management

The risk management function resides in Metro's Risk, Safety and Asset Management Section. The Section assesses individual project risks and potential for damages across a wide variety of potential risk sources including performance, property damage, bodily injury, environmental, reputational, business loss and others. Based on this assessment, strategies are developed to manage expected losses on these projects consistent with Metro's tolerance for risk across the spectrum of risks, while taking into consideration changing industry practices, insurance pricing and terms, the litigation/statutory environment and other factors. Metro believes that the party having the ability to best control individual project risks should retain financial responsibility for these risks; providing better incentives for loss control. In this context, Metro believes that given the contractor's control of each project's worksite, as well as construction means and methods to include safety practices, the contractors should shoulder the principal financial burden of a project's property and casualty

losses. Requiring the contractors to either insure or retain these property and casualty risks has the added benefit of allowing Metro to evaluate explicitly each individual contractor's cost of risk during the procurement and selection process.

3.7.1.1 Insurance

Insurance provides an acceptable method of risk transference that ensures the adequate capital required in the event of claims. By transferring a larger portion of loss exposures to insurance carriers, contractors have an opportunity to do so without the burden of committing working capital to satisfy indemnification requirements.

Insurance helps ensure that all of the various risk exposures are addressed by contractors. In most instances, contractors are required to provide financial support of indemnification requirements in areas of commercial general liability, automobile, workers' compensation and so on. Without utilizing the advantage of risk transference afforded through insurance, contractors would have to demonstrate either through letters of credit, or other forms of consideration, that they could meet contractual obligations to indemnify in the event of losses. This commitment of capital could severely hamper the ability of contractors to participate, especially small, minority, women and disadvantaged businesses, as the requirements to demonstrate the ability to pay claims could prove onerous.

Insurance is designed to pay claims related to damage to property or persons caused by an unforeseen event. As there are many types of policies that afford coverage over a full spectrum of loss exposures, coverage for property loss and bodily injury include the following:

1. Commercial General Liability
2. Commercial Automobile
3. Workers' Compensation and Employers Liability
4. Contractor's Pollution
5. Railroad Protective Liability
6. Environmental Impairment Site Liability
7. Professional Liability
8. Builders Risk

Insurance requirements are established based on the information received from Project Directors/Managers and Contract Administrators.

3.7.1.1.1 Major Construction Projects

Risk Management is responsible for developing and implementing insurance requirements for construction projects. The development of insurance programs for rail and construction projects is assigned to a "Risk Management team" comprised of Risk Management staff. The assigned team

gathers all necessary information from other Metro departments and develops an insurance program for the project.

In the Preliminary Engineering Phase, the Risk Management team reviews the scope of work to define the exposures involved (e.g. above ground work, tunneling, environmental remediation, professional liability and post construction), the duration of the work, the number of contractors involved, whether the project will be Design-Build (D/B) or Design-Bid-Build (D/B/B), and any other factors which impact the type, limits and duration of insurance coverage that will be required. The Risk Management team works closely with Metro's insurance broker and other commercial insurance market resources to confirm availability of coverage and current pricing trends.

Once exposures are defined and appropriate insurance coverage and limits are determined, the Risk Management team confers with the Metro departments of Countywide Planning & Development, Program Management, Transit Operations, Environmental Compliance and Sustainability, and Safety. Based on input from these departments, recommendations are provided as to the type of insurance program that best meets cost, procurement and planning and risk mitigation objectives. For major rail and construction projects, the insurance program recommendations would include an analysis of advantages and disadvantages of a Contractor Controlled Insurance Program (CCIP). Included in the analysis is an evaluation of the requirement that all subcontractors are enrolled in the program, especially design professionals, and establishment of responsibility for claims related to design and construction activities. Prior to commencement of and during construction, the Risk Management team monitors coverage to assure that all policies, endorsements and claim procedures are in order.

In return, the contractor's Risk Financing Manager (RFM) responsible for managing the insurance program for the D/B or D/B/B contractor shall promptly respond to all inquiries as presented by Risk Management or other authorized parties in an effort to mitigate claims and ensure relations with the public and others due to perceived risk exposures are appropriately addressed. The RFM also functions as liaison between Community Relations, other Metro departments and the insurance broker handling the CCIP to assure that claims are being responded to expeditiously and with appropriate sensitivity to community concerns. The RFM will also closely monitor all insurance program cash flows (e.g. deductible expenditures as well as losses not covered by insurance) in order to measure the cost effectiveness of the selected insurance program.

Throughout construction, the RFM is available to meet on-site with Metro, Community Relations, the insurance broker and any other authorized parties as needed to discuss potential and filed claims. In the event of construction or safety emergencies, especially those with community impact, the RFM will assist Community Relations and other departments in the coordination and implementation of an action plan to mitigate insurance losses and community impact.

3.7.1.1.2 Excess Liability Insurance Coverage

With one of the largest infrastructure construction programs in the nation, Metro is concerned about the financial implications of a catastrophic loss resulting in major damage to adjacent properties and loss of life or injury on Metro's major transit construction projects. To mitigate this concern, Metro purchased an excess liability insurance policy with $550 million in additional limits and ten years products/completed operations coverage for ten years following revenue operation. This is only the second policy of this nature placed in the United States but with substantially lower cost per dollars of coverage and far greater exposure.

3.7.2 Safety

Safety of Metro's customers, employees, and business partners is a primary concern of Metro, and takes a pre-eminent role in decision making before all other considerations. The Safety function at Metro will support each capital project during all its phases – planning, design, construction, start-up, operations and maintenance. Support will be provided by two distinct groups of safety professionals: one in the area of System Safety and the other in Construction Safety, each of whose roles is described below.

3.7.2.1 System Safety

Hazard Management: A key function by the System Safety staff will be to manage the formal Hazard Identification and Resolution Program developed and implemented by Metro and its contractors to verify that potential hazards are systematically identified, evaluated, and resolved during Preliminary Engineering, Final Design, Construction, and Integration and Start-up of major rail capital projects. Hazard identification and resolution will be based on information from:

Design reviews by safety, security, and operations representatives; hazard analyses and special reports prepared by consultants, contractors, and suppliers; information from other transit systems; and observations of program participants during Construction and Integration & Start-up. During the project design and construction, the hazard identification and resolution process will be guided by the preparation of a System-wide Preliminary Hazard Analysis (PHA). A PHA will be prepared and will help guide the preparation of other project documents. Following Preliminary Engineering, leading up to Final Design, the contract requirements may expand the hazard identification and resolution process as needed to include other analyses, such as, Failure Modes and Effects Analysis (FMEA), Operating Hazard Analysis (OHA), and Fault Tree Analyses depending on the complexity of a system.

Prior to revenue operations, the Safety & Security Certification Review Team (SSCRT) will review evidence that all identified hazards have been formally closed (i.e., hazards mitigated to as low as reasonably practicable (ALARP)). The contractor will issue a Certificate of Conformance for SSCRT acceptance attesting to the successful resolution of all known hazards.

Fire/Life Safety: A Fire/Life Safety and Security Committee (FLSSC) will be established for each major rail capital project to coordinate compliance and enforcement to Metro Fire/Life safety Design Criteria and NFPA 130 Standard for Fixed Guideway Transit and Passenger Rail Systems. Issues will be coordinated with the fire jurisdictions to enable issuance of a Certificate of Occupancy attesting to the readiness of the project to be used by the public.

Typical areas of concern for compliance to FLS Design Criteria and NFPA 130 Standard are emergency egress, emergency power, emergency ventilation (subway environments), fire detection and suppression, emergency access, selection of non-combustible construction materials, among others.

The FLSSC will coordinate security issues with involved law enforcement agencies to ensure that security concerns are addressed. While there are no equivalent codes similar to NFPA 130 for security, security concerns such as intrusion detection, Close Circuit Television (CCTV) coverage, radio coverage, protection against explosions, among others, will be addressed.

Safety and Security Certification: Safety and Security Certification is the set of processes and procedures that verify the readiness of the project to open to the public. All major rail capital projects

will include a safety and security certification program. On major rail capital projects, the safety and security certification will comply with the requirements of California Public Utilities Commission (CPUC) General Order (GO) 164D, and Metro's own Safety Certification Plan (SCP) prepared for each project.

Some of the more noteworthy areas addressed by the safety and security certification program are:

- Design Verification
- Construction Verification
- Testing Verification
- Emergency drills
- Operational Readiness

Design Verification: Verifies that the design is compliant with applicable requirements (Metro Rail System Design Criteria and Standards (MRSDCS)).

Construction Verification: Verifies that the construction of the project is compliant with the design.

Testing Verification: Verifies that the testing activities have been successfully completed.

Emergency Drills: Verifies that the identified drills have been successfully completed. These drills are often performed with the participation of emergency responder agencies such as Police and Fire. These are also coordinated with the Emergency Response Requirements of Metro's Environmental Management System as coordinated with the Environmental Compliance and Services Section.

The SCP will be submitted to the CPUC for their review and approval. A final Safety Certification Verification Report (SCVR) will be prepared and submitted to the CPUC in accordance with General Order 164D for their review and approval before the project is opened to the public.

State Safety Oversight: The System Safety staff is also responsible for coordinating and managing the safety oversight function provided by the State Safety Oversight Agency. In California, the CPUC is the designated oversight agency. Metro has established an excellent working relationship with the CPUC and will involve their staff in all phases of the major rail capital projects. The CPUC, as part of their oversight function, will conduct joint reviews and approve of proposed at-grade crossing designs, review design drawings, conduct inspections of project infrastructure, and participate in tests and project meetings, culminating in an approval of the Metro's SCP.

Federal Railroad Administration (FRA): Metro will work closely and coordinate with the FRA in the planning and design phases to assure their input is considered and regulatory requirements are met. Each corridor will be evaluated to determine the level of participation necessary for the FRA. If FRA regulations apply to a particular project, Metro will comply with FRA requirements or obtain a waiver, if applicable. Should waivers be necessary, they will be managed on a corridor specific basis.

3.7.2.2 Construction Safety

Three strategies comprise the core of Construction Safety & Security activities:

- Review and edit of safety and security related contract document sections (general conditions, special provisions, technical specifications, etc.);
- Review, comment and approve (or reject) of contractually required contractor safety & security submittals; and
- Verify work site activities and conditions through field reviews.

Contract Documents

Two key baseline documents have been developed, which contain the contractual requirements for the Contractor's Safety and Security Program. They are the Worksite Safety Requirements and Worksite Security Requirements Technical Specifications. Depending on the scope of work of each particular project, these documents will be modified from their baseline versions during the final design phase of each individual project's Contract document development phase and will be included in the General Requirements Section of the Contract Specifications.

Metro Construction Safety has also published a "Master Reference List of Contractor Submittals" which will be utilized for all new projects. This document provides contractor management teams with basic information regarding submittals which are always required by Metro Construction Contracts as well as those which are only required if a certain type of work or operation is planned. It also provides a reference to the proper section in the CSSM where additional information is available regarding Metro's expectations for each different submittal. In a similar manner, there are pre-written paragraphs that apply to the three different types of security requirements needed by the various construction work undertaken by Metro (Armed, Unarmed and Operational Location) which will be modified as applicable for each capital project.

Contractor Submittals

The Construction Safety staff assigned to a project will undertake various compliance checking activities including but not limited to:

Submittal reviews are performed to insure the compliance and quality of the Contractor's Construction Safety activities and to substantiate compliance with the requirements of each technical specification or other contract document. Most submittals are required to be resubmitted as conditions change on the project and will be approved (or rejected) by the Construction Safety or Security staff. Examples of such submittals include Job Hazard Analyses, Construction Project Security Plan, site plans of various lay down storage areas, and incentive programs.

Enforcing the requirements of the Construction Safety & Security Manual (CSSM), which documents the administrative requirements expected of the Prime Contractor and each tier of sub-contractor working on a major capital project for Metro. The CSSM also provides a section that details for the Contractor the requirements and expectation for the various submittals required by Metro.

Verification of Activities and Conditions through Field Reviews

The Contractor's Professional Safety Staff and Project Management (PM) Team (including management staff at each tier of supervision down to forepersons or other line supervisors) is a critical component of the overall Metro Construction Safety Program. This team will have primary responsibility for the safety of their staff, correcting unsafe conditions, and for directing the contractor's individual workers on a daily basis, since they will have the greatest opportunity to modify the behavior of those with the greatest risk of injury by reinforcing positive safety behaviors, retraining or otherwise correcting at risk or unsafe behaviors. Metro's Construction Safety staff will work closely with these individuals and will oversee and verify the contractor's implementation of safety efforts by conducting routine field observations, formal administrative and field reviews, and injury & incident trending. If an activity or condition is deemed to be immediately dangerous to life or health, Metro Construction Safety Staff will have the ability to issue Stop Work Notices. These notices are typically written to stop a specific type of serious non-compliant work or condition while allowing the contractor to continue to work on other tasks that comply with the contract provisions.

As it relates to Security, Construction Safety staff in concert with Los Angeles Police Department (LAPD) and Los Angeles Sherriff's Department (LASD) personnel will regularly audit the activities of the contractors to insure the ongoing compliance and quality of the contractor's security activities. Such regular field reviews will be conducted at various times of the day and night to assess the effectiveness of security features for the physical construction sites and of personnel working at those sites. Reports of the findings will be provided back to the contractor. Areas of non-compliance will be identified and correction plans agreed to between the contractor and Metro will be required.

Safety Specialists will document their work on a daily basis using the Daily Activity Report. Safety Specialists use their Daily Activity Reports to document and describe issues or conditions that are not controlled or corrected at the time of discovery. Daily Activity Reports are reviewed by the Construction Safety Manager (CSM) assigned to the specific Project. Staff activities are overseen and reviewed by the Director of Construction Safety (DCS). More detailed discussion of this activity is found in the Construction Safety & Security Manual.

Safety and Security Incentive Programs

Metro recognizes that a well-run and safe worksite benefits not only the contractor but Metro as well. Therefore, in an effort to encourage safe behavior and safe work practices, Metro will provide incentives designed to affect the behavioral choices of both craft and management or supervisory employees.

Metro's Safety's First Incentive Program provides a method to pay for a limited amount of incentive prizes or rewards based upon the safety performance of a particular crew or other working group. This program will be included in major, federally funded, new construction projects. After the program is approved by the Construction Safety staff, the contractor may procure approved prizes or other awards. These prizes or awards are then presented as directed in the contract and contractors' program.

3.7.3 Emergency Management

Metro Emergency Management's (MEM) role in supporting the capital projects will be twofold:

3.7.3.1 Enhanced Threat & Risk Assessments (ETRA)

Develop ETRAs of proposed site/facility/yard in support of the Contractors' Hazard Identification, Analysis and Resolution Management process. The ETRA process, developed by the U.S. Department of Homeland Security, identifies natural and man-made (intentional/accidental) hazards and the likeliness of occurrence and impacts near or within the proposed site's footprint. Data is researched based on past incidents, criticality of the site, population of the site, economic and human impacts, and potential threat elements.

3.7.3.2 Support Safety and Security Certification

MEM's support role for achieving safety certification for the new capital projects will include the following functions:

- Act as liaison to local first Responders for coordinating meetings, trainings, and exercises to include objectives, tasks, or to establish other initiatives.
- Identify and develop (10-15) tabletop, functional, or full-scale exercise scenarios based on past incidents, likely occurrences, and industry standards.
- Support training initiatives for local first Responders including site, rail car, rail station logistics (power, accessibility, communication systems/equipment, CCTV, fire systems) and Metro Standard Operating Procedures for incidents.
- Coordinate and/or host exercises with first Responders and Metro staff, perform evaluations, and develop after action reports determining root cause analysis to system or emergency response issues and provide recommendations.
- Develop emergency site plans and provide training to employees and first Responders regarding utility shutoffs, evacuation routes/staging areas, emergency notifications and communication, and site response.
- Certify that outside emergency response personnel have been prepared to respond to emergencies.
- Coordinate with Environmental Compliance and Sustainability Section in the execution of emergency response drills as well as emergency response requirements of the Environmental Management System.

3.7.4 Enterprise Transit Asset Management (ETAM)

Metro's ETAM Section has developed a Transit Asset Management (TAM) Plan and is implementing it per the FTA Rulemaking (July 2016). As new capital projects are completed, the assets will be added to Metro's Asset Database for tracking and planning for future rehabilitation and replacement needs. TAM processes such as: condition assessments, lifecycle planning, FTA reporting, asset

prioritization etc., will be performed to ensure that Metro's assets are in a state of good repair. Metro's TAM initiatives include management of the TAM Plan, asset inventory database, bridge and tunnel inspections, vertical transportation capital renewal, implementation of FTA's TAM rulemaking, State of Good Repair (SGR) input to Metro's Short and Long Range Transportation Plans, developing input on TAM requirements to update Metro's Enterprise Asset Management (EAM) system and coordination of Metro's TAM program with the safety and risk management. As resiliency to extreme weather events and stormwater are new requirements of the 2015 FAST Act, Environmental Compliance and Sustainability Section staff is coordinating with ETAM staff to ensure that the agency's Climate Change Mitigation and Action Plan are consistent with the requirements and implementation of the TAM Plan. Additional coordination with Metro Operations is in place in the implementation of these combined requirements.

3.7.4.1 Data and Analysis for New Extensions

ETAM will also develop asset inventories for new extensions to allow recognition of future asset and resource needs in the Annual Budget and Long Range Financial Planning process. As new projects go through planning, design, construction phases and finally asset turnover to operations, significant new asset information is generated. These assets will be updated in the SGR database.

ETAM will capture asset unit cost data using FTA Standard Cost Category (SCC) Spreadsheets periodically during each phase of the project development process from alternatives analysis to environmental clearance, preliminary engineering, final design, construction and revenue start up. ETAM will ensure that complete data is collected throughout all phases following the work break down structure consistent with the FTA SCC and Metro's Asset Inventory Database to support on-going operations and maintenance.

Utilizing the workforce planning model, ETAM will estimate staffing needs to support the major capital rehabilitation and replacement activities associated with both Measure R and Measure M projects agency wide (Risk, Safety and Asset Management, Operations, Procurement, Engineering, Planning, Information and Technology Services, Finance etc.) Additional details related to all Safety activities will be included in the Safety and Security Management Plans (SSMP), individually written for each Federally Funded Project if required by the FTA.

3.7.5 Key Positions

3.7.5.1 **Chief Risk, Safety, and Asset Management** - Provides executive direction to the overall development and implementation of Metro's Safety, Emergency Management, Asset Management, Continuity of Operations, and Risk Management programs by contributing to the objectives of mitigating hazards, bus and rail accidents, and employee & contractor injuries to ensure the integrity and efficiency of Metro policies and practices, the protection of assets and revenues, compliance with law, and adequacy of internal controls, directing the overall administration of Metro's transit safety functions and compliance activities, directing the development, implementation, administration and review of Metro's comprehensive safety programs and plans, and establishing and implementing long-range safety goals, budget, plans, priorities and standards of performance on safety and related environmental matters. The Chief Risk, Safety and Asset Management, reports to the Chief Executive Officer.

3.7.5.2 **Executive Officer, Corporate Safety** - Executes and implements the overall activities and programs of the Bus and Rail Safety, Risk Management, Emergency Management,

and Asset Management units of Metro; providing technical advice and policy recommendations to Executive Director on matters related to Metro's transit design safety, operations safety, and risk mitigation strategies; overseeing compliance with State & Federal agencies' rules and regulations; leading the development of Safety Management System programs for bus and rail as mandated by FTA, assisting in developing programs to preset to insurance underwriters to provide coverage for Metro's loss exposure; overseeing the implementation and coordination of internal or external audits/reviews/examinations/inspections of facilities, systems, and Metro's fleet. The Executive Offer, Corporate Safety reports to the Chief Risk, Safety, and Asset Management.

3.8 System Security and Law Enforcement Department

This section defines the standard operating procedures of the Metro's integrated security and law enforcement efforts, and represents security tasks to satisfy Program requirements. Security and law enforcement are prioritized among all Metro operations, projects and programs. The Chief of Security and Law Enforcement is empowered and authorized by the Chief Executive Officer to develop, distribute, implement, and administer comprehensive security and law enforcement procedures for all Metro operations.

3.8.1 System Security Plan

Metro maintains an approved system security plan (SSP) that serves as the policy documents for metro. The SSP addresses the security requirements for protecting passengers, employees, and facilities. The SSP was developed in accordance to 49 code of federal regulation (CFR), part 659, California public utilities commission (CPUC), and general order 164-d, section 4.0, and internal security review and audit process consistent with CPUC general order 164-d section 5.0.

3.8.2 Organizational Security Function

Metro's Security and Law Enforcement Division provides protection for facilities, bus and rail systems, and the general public. The fundamental goal of the System Security and Law Enforcement Division is to create an environment where patrons and employees can move throughout the system 24/7, safely and without fear.

The security and law enforcement teams have three primary tasks. Metro security staff provides security for Metro's headquarters building, safeguards the revenue collection teams, and conducts system-wide fare enforcement operations. Contracted private security firms provide fixed-post security at Metro facilities and key stations. Contracted law enforcement agencies area tasked with addressing crime and disorder, enforcing Metro's Code of Conduct, and reducing the system's vulnerability to terrorism.

3.8.3 Threat and Vulnerability Management

Threat and vulnerability management will be administered by Chief of System Security and Law Enforcement. The purpose of threat and vulnerability analyses during the design phase of the Project is to:

- Provide for constant and continuous safety and security evaluation and assessment;
- Minimize or eliminate potential vulnerability and threat to the system; and
- Identify mitigation measures;

In coordination with the Metro project director/manager, the implementation and compliance of the mitigation measures shall be monitored during the design phase.

3.8.4 Security Design Criteria

System Security and Law Enforcement will review design criteria pertinent to the safety and security of the employees and patrons. The review will focus on, but not limited to, threat and vulnerability assessment, closed-circuit television system, emergency communication system, lighting, and crime prevention through environmental design.

3.8.5 Key Positions

3.8.5.1 **Chief System Security and Law Enforcement Officer** - Is responsible for project managing the security and Los Angeles Sheriff's Department contract, preparing and presenting Metro security reports to executive and management staff, the Board of Directors, and outside regulatory agencies, setting and implementing project policies, procedures, safety and work standards, ensuring compliance with Metro policies and procedures and applicable state, federal and local regulations and laws, and supervising subordinate staff or the work activities of consultants. The Chief System Security and Law Enforcement Officer, also evaluates staff's overall level of knowledge, skills and abilities, assists in developing the department's succession plan, oversees, monitors, and adheres to departments/units budget, goals, and schedules which complies with to agency-wide fiscal responsibility and maintains, supports, and promotes a safe work environment while complying with all of Metro's safety rules, policies, and procedures. The Chief System Security and Law Enforcement Officer, reports to the Chief Executive Officer.

3.8.5.2 **Director, Transit Security** – Is responsible for directing the overall functioning of Security Department while supporting a community oriented policing philosophy and conducting and administering major security initiatives and contracts related to Metro's security program. This position also plans and develops security program enhancements to respond to new security threats. The Director, Transit Security reports to the Chief System Security and Law Enforcement Officer.

3.8.5.3 **Manager, Transit Security and Law Enforcement Performance Compliance –** Is responsible for managing, monitoring, evaluating and overseeing security and law

enforcement contract compliance. This positon also develops Key Performance Indicators (KPI) to measure performance against contractual requirements. The Manager, Transit Security and Law Enforcement Performance Compliance reports to the Chief System Security and Law Enforcement Officer.

3.8.5.4 Manager, Citation Enforcement – Is responsible for managing, directing and overseeing the day to day administration and processing of Metro's Transit Citation program. The Manager, Citation Enforcement reports to the Chief System Security and Law Enforcement Officer.

3.8.5.5 Manager, Transit Security Technical Grants Program – Is responsible for managing and directing the complex development, implementation, monitoring, sustainment, and evaluation of security grants intended to upgrade technology in the area homeland security. The Manager, Transit Security Technical Grants Program reports to the Chief System Security and Law Enforcement Officer.

3.8.5.6 Chief Administrative Analyst - Provides highly complex administrative, budgetary, financial systems, and analytical support for an assigned department. This position reports to the Chief System Security and Law Enforcement Officer.

3.8.5.7 Transit Security Community Liaison - Builds and sustains key partnerships with Los Angeles area community organizations, schools, neighborhood groups and youth gang prevention/intervention programs. The Transit Security Community Liaison reports to the Chief System Security and Law Enforcement Officer.

3.9 COMMUNICATIONS DEPARTMENT

3.9.1 Public Information, Engagement, Outreach and Communications

Communications has a significant role in implementing the Measure M. The Metro Communications Department will develop a Strategic Communications Plan to establish and maintain a high level of communication and outreach to various stakeholders throughout the implementation of the program. The public outreach, engagement and communication functions are essential parts of keeping communities informed and engaged throughout the Measure M implementation process. This effort will help build public confidence in Metro and the program, identify and resolve issues and concerns, and promote the program's progress and success.

The Communications Department is made up of six units: Community Relations, Public Relations, Marketing, Government Relations, Customer Relations, and Customer Programs and Services. Each is involved in successfully implementing the Communications Plan, with primary responsibilities occurring through the Community Relations, Public Relations, and Marketing Divisions. The various units within Communications will collaborate to develop and implement the overarching public information and outreach and revise the plan as the program evolves.

3.9.2 Mission

Metro Communications engages everyone in the transformation of mobility in LA County. To that end, the Measure M Public Information, Engagement and Outreach Program will support the implementation of Measure M by creating and maintaining a comprehensive internal and external communications program that provides a consistent, accurate, timely and reliable flow of information. Metro Communications will implement a robust public information and engagement process from environmental planning to construction, testing, and beginning of revenue service.

3.9.3 Goals

a) Educate and engage the public about mobility options and Metro programs, projects and services

b) Enhance the customer experience

c) Maximize the Metro brand

d) Build a constituency for transportation

3.9.4 Public Information, Engagement and Outreach Approach

In order for Communications to be effective in supporting multiple projects in varying stages of planning, construction, testing and safety training, the Communications Department will have two main areas of focus: Staffing/resources focused on the ongoing day-to-day work related to general agency programs and projects, and staffing/resources with a parallel structure created to execute all communications functions for the Measure M Program implementation.

Metro Communications Leadership, including Public Relations, Community Relations and Marketing, will develop the program and project communications strategy, establish roles and responsibilities, and oversee the implementation of Measure M communications. The Measure M Program Communications Team will be composed of Metro full-time employees (FTEs), Metro Limited Term (Project) Employees, and Contracted Staff from an on-call consultant.

The project-level communications will be implemented through a combination of Agency FTEs, Project Employees, and Contracted Staff from the on-call consultant Metro will assign a full-time Agency staff member on each major project to serve as Communications Manager. The Manager will oversee all project communications. The Agency and Consultant staff may co-office to enhance coordination and convenience, streamline work efforts and provide an atmosphere of cohesion and collaboration.

The Community and Municipal Affairs group will manage and oversee the facilitation of the Measure M Taxpayer Oversight Committee with participation from internal partners from the Office of Management and Budget (OMB), Public Relations, Planning, and Program Management.

3.9.5 Contractor Communications Team

The Environmental or Construction Contractor on each major project will establish a Communications Team to represent the Contractor's interests and information. The Contractor will appoint a full-time Communications Manager to take the lead on all construction-related or coping information, The Manager will be assisted by other Communications support staff as necessary to carry out the Contractor's responsibilities. The Contractor's Communication Manager will also take the lead on media inquiries about construction activities, construction impacts and construction incidents.

The Contractor's Communications Team will coordinate the Contractor's construction information with Metro's Project Communications Team (comprised of Agency and Consultant staff). The preferred approach is for this collective project communications team to co-office in the project office to enhance coordination, streamline processes and create a cohesive and collaborative work environment. The Agency and Contractor Communications Teams will work collaboratively to ensure that construction information and project progress are provided in a timely and proactive manner. The Metro Communications Team will direct the planning and orchestration of project community outreach, meetings and events; coordinate messaging; and guide development, review and dissemination of project informational materials. The Contractor's Manager will take the lead on development and distribution of door hangers/notifications to impacted properties prior to the start of construction activities.

The Metro Communications Team and the Contractor Communications Team will work together to develop an internal communications plan to keep Agency Board members and staff and the Contractor Project Team updated, informed and engaged in the project with timely and consistent messages.

3.9.6 Communications Program Organization

The Project Communications Team on each project will manage the public outreach, engagement and overall communications for all phases beginning with environmental continuing through construction and moving into operations. This cradle to grave approach will allow for a seamless public experience and institutional knowledge from both the technical development of the projects and the development of mitigations. The teams will be responsible for all of the following program elements:

- Public involvement during the environmental, design and construction phases
- Public information during all phases
- Project media relations
- Construction updates, impacts and duration
- Coordination of contractor activities and ensuring access is maintained
- Mitigation of construction impacts and supporting small businesses through innovation

Metro's Public Relations and Marketing Sections will assign staff to the Measure M program to provide support in several areas:

- Overarching Messaging
- Media Relations
- Graphic Design
- Collateral Development
- Crisis Communications
- Photography/Videography

Metro's general Communications Team will lead the strategic communications approach for the Measure M and oversee communications about the areas of the plan outside of major highway and transit projects. Those include bus and rail operations and maintenance; local return projects; active transportation; programs for seniors, students and persons with disabilities; regional rail; and state of good repair. The Community Relations Project Management Team Roles and Responsibilities are listed in Table 5.

3.9.7 Phases of Measure M

The Project Management Team in Community Relations approaches the communication program in four primary phases of the Measure M:

- Planning (environmental)
- Design
- Construction
- System Test, Safety Training and Start-Up

Each phase and each project requires unique approaches, methods and strategies for communicating with stakeholders and engaging the public in the Measure M Program.

Table 5: Community Relations Project Management Team Roles and Responsibilities

COMMUNICATIONS TEAM ROLES AND RESPONSIBILITIES

Area/Task	Metro Core Staff (FTEs & Project Employees	Augmented Agency Staff	Construction Contractor Team
Public Engagement (PE) Consultant Process	• Assigns Project Director/Manager • Reviews and approves Internal Communications Coordination Plan • Develops PE Plan • Oversees implementation of PE Plan	• Assigns PE Process Manager • Coordinates, manages and implements approved PE Plan Contract • Assists as needed to implement PE Plan	• Prepares, submits and supports implementation of PE Plan
Issues Tracking	• Tracks construction issues and resolution • Works with Contractor counterparts to resolve issues	• Tracks construction issues and resolution • Works with Contractor counterparts to resolve issues	• Coordinates with technical team to resolve issues and tracks resolution
Crisis Communications	• Develops an overarching Crisis Communications Plan in coordination with Safety, Project Management and Public Relations	• Assists in development of a Crisis Communications Plan in coordination with Safety, Project Management and Public Relations	• Develops project Crisis Communications Plan with Metro Community Relations Project Management
Government Relations	• Coordinates local elected official briefings for the project • Coordinates with Metro Government Relations on briefings to state	• Coordinates local elected official briefings for the project • Coordinates with Metro Government Relations on briefings to state	• Prepares presentations and other requested materials for elected officials on behalf of the contractor

	and federal elected officials	and federal elected officials	• Works through Metro to schedule briefings
Media Relations	• Serves as official spokesperson for the project	• Supports the project with media queries, releases and events	• Serves as official spokesperson for the contractor and construction incidents
Public Outreach & Stakeholder Communications	• Leads all interactions and community meetings with the public including businesses, residents, organizations, etc.	• Supports communications with the public including businesses, residents, organizations, etc.	• Supports communications with the public including businesses, residents, organizations, etc. by providing construction related information and exhibits
Website and Social Media	• Develops content and works to provide comprehensive information about the projects online	• Develops content and works to provide comprehensive information about the projects online	• Provides project and construction information for web and social media posting
Key Messages	• Develops overarching key messages and distributes to internal and external partners t	• Develops overarching key messages and distributes to internal and external	• Develops key messages about construction efforts, processes and incidents
Graphic Design	• Works with Metro Marketing to brand and create all project collateral materials	• Works with Metro Marketing to brand and create all project collateral materials	• Supports the project by providing renderings of final design elements (streetscape, landscaping, stations, etc.)

Stakeholder Lists	• Develops and maintains stakeholder lists for electronic and mail based communications	• Develops and maintains stakeholder lists for electronic and mail based communications	
Environmental/ Construction Notices	• Reviews and approves all notifications • Distributes notices electronically and through digital and social media	• Reviews and approves all notifications • Distributes notices electronically and through digital and social media	• Authors, translates and distributes advance door-to-door and other project notifications
Project Hotline	• Manage and log all call to the hotline, 24/7	• Manage and log all call to the hotline, 24/7	• Available 24/7 for project emergencies
Special Events & Tours	• Leads the planning and orchestration of all project special events	• Assists in the planning and orchestration of all project special events	• Coordinates project special events with Metro staff
Community Leadership Council	• Facilitates and manages the public engagement opportunities on each project through the CLC	• Facilitates and manages the public engagement opportunities on each project through the CLC	• Supports Metro staff in the public engagement process by providing materials, exhibits (i.e., station design, landscaping, etc.)

3.9.8 Taxpayer Oversight Committee

One of the primary and long-term elements of the Communications Plan is facilitating the Measure M Taxpayer Oversight Committee. The Taxpayer Oversight Committee is a committee of seven representatives from different discipline areas or sectors of the community including a Federal or State judge; a professional from the field of municipal/public finance; a transit professional; a manager or administrator of financial policies or performance measurements; a construction industry professional; an architect or engineer; and a representative of a regional association of businesses.

The committee's purpose is to carry out the purposes of the Expenditure Plan Ordinance to ensure the plan is being implemented as intended. The committee has the responsibility of directing the work of the auditors selected to audit the program, prepare an annual report on the results of the

annual audit, and hold an annual public hearing to report the results of the audit. The committee will also review all proposed debt financing and proposed amendments to the Ordinance.

Facilitation of the committee is a function of Community & Municipal Affairs in Community Relations and is to continue throughout the implementation of the Measure M Program.

3.9.9 Key Positions

3.9.9.1 Chief Communications Officer - Is responsible for directing and implementing Metro's overall communication efforts, external stakeholder communications and community relations, through various channels including but not limited to, print, electronic media, digital media, speakers' bureaus, video, social and new media, outdoor, events, etc. The Chief Communications Officer develops, directs and implements communications programs in support of Metro's marketing, public relations, intergovernmental relations, and multi-model and local government relations programs consistent with Metro goals and objectives. The Chief Communications Officer reports to the Chief Executive Officer.

3.9.9.2 Deputy Executive Officer, Communications - Is responsible for technical projects, communication programs, and analytical work in customer relations, marketing, and policy development within revenue programs, customer service, media, and external communications. Develops overall plans and approaches for customer relations operations, marketing campaigns, community outreach programs, and internal employee programs. Directs the development of extensive customer related and/or marketing programs and studies, including evaluations of existing and proposed services, costs, productivity, cost-effectiveness, and service area impact. The Deputy Executive Officer, Communications reports to the Chief Communications Officer.

3.9.9.3 Deputy Executive Officer, Community Relations - Is responsible for development and implementation of plans and strategies for community outreach programs, marketing campaigns, internal employee programs, and mitigation programs in support of Service Sector and Construction, and in response to community needs. Represents Metro before public official, private entities, professional, civic, governmental groups, and task forces at career fairs, community, and special events. Serves as Metro spokesperson and representative on American Disability Act (ADA) issues including developing, implementing, and monitoring ADA action plan to increase internal and external awareness of ADA activities. The Deputy Executive Officer, Community Relations reports to the Chief Communications Officer.

3.9.9.4 Deputy Executive Officer, Public Relations - Is responsible for development and implementation of the agency's strategic public relations program and establishes goals and activities to ensure a proactive communications program with the public, news media, regional stakeholders, Metro Board and Metro staff. Manages the Public Relations Section and collaborates with other divisions of the Communications Department. Leads the development of public information efforts relative to existing, new and developing programs and advises executive management on public relations aspects of such programs. Serves as a primary spokesperson with the news media and agency representative for a wide variety of public and private organizations. The Deputy Executive Officer, Public Relations reports to the Chief Communications Officer.

3.9.9.5 Deputy Executive Officer, Government Relations - Is responsible for and oversees the Federal and State Advocacy efforts at Metro. The DEO supervises a staff of 5, as well as contract lobbying teams in Washington DC and Sacramento. The DEO also serves as chief liaison between Metro and with members of the California Gubernatorial Administration, State Assembly and Senate and other state government officials to advocate on behalf of Metro's Legislative Program which includes actively supporting legislation and policies benefiting transportation services and projects with the assistance of and while directing the work of Metro's team of Sacramento based contract lobbyists. The Government Relations DEO meets and speaks with state and federal government officials, and public and private sector groups to foster support for Metro's projects and programs. While also responsible for contacting and conferring with members of state legislature and other holders of public office and stakeholders to persuade them to support legislation in Metro's interest. This Position also studies proposed legislation to determine possible effects on Metro's interests and provides technical and advisory assistance to the CCO on state legislative matters that may come, or are before the Board for its consideration. The Deputy Executive Officer, Government Relations reports to the Chief Communications Officer.

3.9.9.6 Director, Customer Programs and Services - Is responsible for directing the overall activities of the Communications Division's Customer Programs and Services unit, which includes; customer service, fare media sales, Metro Customer Centers, Mobile Customer Center, TAP Stockroom for distribution of fare media throughout Los Angeles County; administering the TAP Reduced Fare Program, the Lost and Found and Metro Mail operations, and developing, implementing and ensuring compliance with agency-wide fare policies. This position reports to the Chief Communications Officer.

3.9.9.7 Director, Customer Relations – Is responsible for directing, planning and controlling overall activities of three functional units in the Department, including Metro Information Contact Center, that provides trip planning assistance to customers, throughout the five regional counties, who call 323.GOMETRO; TAP Information Contact Center that assists TAP customers, who call 866TAPTOGO regarding their TAP card; and Customer Complaints that receives and responds to customer complaints/inquiries, comments and suggestions regarding Metro services, projects and programs. Ensures customers receive timely and accurate responses to their inquiries and resolutions to their complaints and concerns; develops and implements strategies to support department/agency goals and ensures compliance with two bargaining agreements – American Federation of State, County and Municipal Employees Union (AFSCME) and the Transportation Communications Union(TCU)/International Association of Machinist and Aerospace Workers (IAM). The Director, Customer Relations reports to the Chief Communications Officer.

3.9.10 Consultants

The Community Relations Division will oversee the Communications Consultant with support from the Marketing and Public Relations Divisions. The Consultant will provide a wide range of communications and outreach support associated with implementation of the Measure M Program.

The primary role of the Communications Consultant is to be an extension of Metro staff in support of Metro's comprehensive communications program. Functional areas of service include public outreach; public involvement/engagement; issues management; stakeholder communications; media relations; mitigation coordination; development and production of project collateral materials; planning and orchestration of special events and activities; and coordination and facilitation of project advisory committees or councils. The Consultant contract will provide an opportunity for various subcontractors to partner and perform an array of stated services as part of this multi-year work effort. The Community Relations Director will lead coordination efforts with the full-time Consultant Project Manager, who will oversee and direct the work of the Consultant Team. This will include assigning contracted staff to the program team or project teams as necessary. The Communications Consultant will also provide support services for various facets of communications such as: marketing, graphic design, video production, media buying, copywriting, database and public comment tracking management, website maintenance, social media, etc. as needed and on an on-call basis.

As the Measure M projects progress through the various stages of planning and development, design and construction, testing, and start up, Metro will determine the level of staffing support needed by the Agency and the Consultant to carry out the program level and project-specific public outreach, engagement, mitigation and overall communications duties.

3.10 EMPLOYEE/LABOR RELATIONS DEPARTMENT

Metro has organized services that recruit, develop and support the workforce within the department of Employee and Labor Relations. The department is organized with three Divisions; General Services, Labor Relations and Talent Management. These services are designed to support the core business of Metro.

3.10.1 General Services

This division manages all printing services, travel coordination and the maintenance of the Gateway Headquarters facilities. Space planning for over 1800 employees is conducted to design work units, conference facilities and public meeting spaces. This team manages and maintains all parking and leased facilities on the property.

3.10.2 Labor Relations

This division conducts all of Metro's negotiations leading to the Collective Bargaining Agreements with the Union partners. Over 85% of Metro's workforce are members of one of five Labor Unions. Contract interpretation and implementation is also conducted by members of this team. Grievances at the second and third levels are heard and/or administered by the Labor Relations team.

3.10.3 Talent Management

This division is responsible for talent acquisition and talent development. Team members manage recruitment and selection, including testing and background checking for over 2500 hires each year. Recent recruiting efforts have been focused on strategies for *hard-to-fill* positions and improving forecasting for talent needs. The responsibility for all classification/compensation functions and leave management, including accommodations are provided in by this business group. In Talent Development this group manages 500,000 hours of training annually, including a Leadership Academy and Career Pathways Program. This team also manages the emerging talent programs for internships and entry-level professional development.

The Employee and Labor Relations conducts labor forecasting to determine the eligibility and likelihood of retirements throughout the organization. This information is combined with turnover rates and conditions within the Southern California Labor Market to determine how churn within the workforce may affect Metro's business. Metro has invested in an extensive Workforce Development efforts, including Leadership Development at all levels to assist in preparing employees for upward mobility options. Efforts to advance knowledge transfer have been conducted within work units and supported by team members from Talent Development. On average 25% of Metro's workforce is eligible to retire today and that number will likely increase to 45% over the next 5 years. The Employee and Labor Relations Group has developed a robust Internship and Entry Level Training Program for recent college graduates. Career Paths have been designed to assist current and potential employees to understand the skills, knowledge and abilities that are required to move throughout the organization.

3.10.4 Key Positions

3.10.4.1 Chief Human Capital and Development Officer – Provides Executive direction and visionary leadership to the overall Human Capital, Talent Acquisition, Talent Development, General Services and pensions/benefits functions of Metro in order to drive organizational success. The Chief Human Capital and Development Officer also develops and implements strategy and directs data analyses used for negotiations, mediation, and arbitration with all employee organizations/labor unions to facilitate constructive relationships and successful contract development; plans and implements department goals and objectives; encourages innovation; and facilitates and monitors progress and administers department budgets. This position serves as Chief Negotiator for all labor negotiations, or oversees designee and reports to the Deputy Chief Executive Officer.

3.10.4.2 Executive Officer of Human Resources – Oversees all Talent Management services including recruitment, development, leave management, total rewards/benefits and pension. In addition, this position coordinates Employee Assistance Plan Services, Workplace Threat Management and Employee Relations (clearing house for employee claims and complaints). The Executive Officer of Human Resources reports to the Chief Human Capital and Development Officer.

3.10.4.3 DEO Labor and Employee Relations - Manages Labor Relations/Employee Relations staff and conducts contract interpretation, consultation, training and Grievance Hearing administration. The DEO Labor and Employee Relations reports to the Chief Human Capital and Development Officer.

3.10.4.4 DEO General Services - Directs and monitors construction management, construction schedule, and tenant improvements with Gateway and the transit plaza, printing services, parking, and the travel desk and provides policy direction and plans to the department directing the establishment of key goals, principal priorities, and advising in the development of strategies and resolution of major problems. The DEO General Services reports to the Chief Human Capital and Development Officer.

3.10.4.5 DEO Workforce Services - Is responsible for contract management, budget development, financial services for the department, Human Resources Information System support, agencywide policies, and workforce data analysis. The DEO Workforce Services reports to the Chief Human Capital and Development Officer.

3.11 CONGESTION REDUCTION (EXPRESSLANES) DEPARTMENT

3.11.1 Background

On November 10, 2012 the Los Angeles County Metropolitan Transportation Authority (Metro) in partnership with the California Department of Transportation (Caltrans) opened the first High Occupancy Toll (HOT) lane (also known as ExpressLanes) in Los Angeles County by converting the existing High Occupancy Vehicle (HOV) lanes on the I-110 between Adams Blvd. and 182nd Street into HOT lanes. Three months later on February 23, 2013, the existing I-10 HOV lane was converted to a HOT lane between Alameda Street and the I-605 freeway. In addition, a second HOT lane was added on the I-10 between Fremont Avenue and El Monte, CA. Whereas Single Occupant Vehicles (SOVs) were prohibited from traveling on the HOV lanes, HOT lanes allow SOVs to travel on the HOT lanes by paying a toll between $0.10 and $1.50/mile depending on traffic conditions (maximum toll rate may increase by $0.10 per mile per quarter should traffic conditions warrant it). In addition, carpools (on the I-110 the HOV policy is HOV-2 while on the I-10 the HOV policy is HOV-3+ during peak periods (5-9 AM and 4-7 PM Monday-Friday) and HOV-2+ at all other times), vanpools, publicly and privately operated buses, and motorcycles continue to travel on the ExpressLanes at no charge.

If travel speeds in the ExpressLanes fall below 45 mph, the lanes revert to HOV only access, with non-HOV vehicles no longer able to buy into the lanes. In doing so, travel time reliability for ExpressLanes users and transit riders is preserved.

By incentivizing the use of the available capacity in the ExpressLanes, the I-110 and I-10 ExpressLanes have proven to be effective in increasing travel speeds and reducing travel times without adversely impacting traffic flow in the general-purpose lanes, thereby improving overall corridor performance. At the same time, beyond providing revenue to fund the operations and maintenance of the ExpressLanes, the program has generated additional revenue that is used to support increased transit and freeway improvements within the corridor as well as funding a variety of active transportation, new/improved transit, and roadway improvement projects in the corridor.

Officially known as the Congestion Reduction Department within Metro, this department is responsible for the operation and maintenance of the I-110 and I-10 ExpressLanes, marketing/communications, planning of new express lanes facilities, and administration of Service

Authority for Freeway Emergency (SAFE) and the Freeway Service Patrol (FSP) Program.

3.11.2 Department Overview

The ExpressLanes are managed by the Congestion Reduction Department within Metro. This department is headed by an Executive Officer who is responsible for managing the overall operation of the I-10 and I-110 ExpressLanes and overseeing the strategic planning for potential new ExpressLanes facilities.

The Executive Officer, Congestion Reduction represents the department to Metro executive management, Board of Directors, and other key stakeholders such as Caltrans, provides strategic direction to department consistent with Metro's overall goals and vision, manages the department budget, and directly manages the Deputy Executive Officer, who in turn manages project managers for operations, maintenance, construction, communications and planning. The Executive Officer, Congestion Reduction reports to the Deputy Chief Executive Officer of Metro.

3.11.3 Lifecycle Project Delivery

The life cycle of an express lanes project progresses from planning to environmental, design, construction, and testing before the project is opened to the public. Implementation of a new ExpressLanes facility would require major coordination between Metro and Caltrans, with each agency assuming key roles in the project.

A potential express lanes project begins with the preparation of a Project Study Report (PSR). The purpose of the PSR is to estimate the potential costs and benefits of an ExpressLanes facility in a corridor and determine whether further detailed studies are warranted. If the PSR determines that an ExpressLanes facility would provide mobility benefits to a corridor, the next steps in the planning process would be to initiate a Project Approval/Environmental Document (PAED), Concept of Operations (ConOps) report, and a Traffic and Revenue (T &R) Study. Generally, PSRs are prepared by Caltrans with assistance and input from Metro.

The PAED will prepare a preliminary design and estimate the potential environmental impacts of the facility. In order to reasonably estimate environmental impacts, the preliminary design is prepared that will include geometric plans, identify right-of -way requirements, conduct geotechnical studies, traffic forecasts, potential utility relocation needs, storm water/drainage studies, and a project cost estimate. The environmental document will then analyze the preliminary design to determine if there will be any potentially significant impacts to noise, air quality, biological environment, traffic, visual, cultural resources, water quality, geology, and noise. As part of the environmental document, Metro would also conduct an environmental justice analysis. After analyzing these impacts, the environmental document will determine if these impacts can or cannot be mitigated to a less than significant level and whether any mitigation measures are required. Upon completion of the environmental document, the lead agency for the project would issue findings and certify the document. It is likely that Metro would lead the preliminary design process while Caltrans would prepare the environmental document.

Concurrent with the preparation of the PAED, a ConOps report would be prepared that establishes the framework for the operation of the express lanes. Key components of the ConOps include facility design considerations such as access locations, ingress/egress, toll points, CHP observation areas, and signage. In addition, toll policies would be identified such as occupancy requirements, vehicle exemptions, toll rates, and hours of operation. Toll system requirements would also be identified

including toll collection equipment, violation enforcement, back office/customer service center integration, and communications. Metro would lead the preparation of the ConOps with consultant assistance.

In addition to the PAED and ConOps, a T&R Study will be prepared. The purpose of the T&R Study is to estimate the revenue potential of an express lane and if there would be net revenue generated by the facility. It does so by studying existing and projected traffic volumes, the level of congestion in the corridor, and the value of time for users of the corridor to determine the willingness and price range drivers would pay to use an express lane. Metro would lead the preparation of the T&R study with consultant assistance.

Upon completion of the PAED, ConOps, and T&R studies, the Metro Board of Directors would then make a determination as to whether to proceed with the next steps in the project development process, which would be to allocate funding for and direct staff to complete the Plans, Specifications, and Estimates (PS&E). In addition, the Board could direct staff to seek construction funding if there is not sufficient funding to fully fund the project. Potential funding sources include earmarks, competitive grant process, bonding, TIFIA (Transportation Infrastructure Finance and Innovation Act) loans, or other sources.

In the PS&E phase, the preliminary design from the PAED would be brought either to a 30% or 100% design level depending on the method of project delivery used. The design would include both roadway improvements and tolling infrastructure. During the PS&E phase, Metro would also need the participation of its toll operator -to ensure that the tolling equipment specifications conform to and are compatible with the Metro toll operator's systems.

There are several alternative methods of designing and delivering the project including design-bid-build, design-build, and design-build-operate-maintain. There are advantages and disadvantages to each of these project delivery methods and each of these would be weighed to determine which method to implement. In any scenario, Metro would hire outside consultants to complete the design and a construction contractor to construct the project.

Depending on the method of project delivery, construction would begin either during design or after design is completed. In the case of the I-10 and I-110, the lanes were restriped to accommodate the express lanes and the major construction involved installation of tolling equipment. However, no right-of-way takes were required. The level of complexity and construction duration of a new ExpressLane will depend on whether the project involves restriping of an existing facility or new construction (e.g., aerial structures, roadway widening) and whether or not additional right-of-way is needed.

Upon substantial completion of construction, a testing phase would commence in which tolling equipment, the dynamic pricing algorithm, cameras, enforcement beacons, dynamic message signs, pavement sensors, and back office integration would be tested to ensure that all systems function correctly. In addition to Metro and Caltrans, Metro's toll operator would also need to be involved to ensure that all tolling infrastructure communicates and integrates with their systems.

Metro management would be involved throughout the project development process, from the PAED through the PS&E and construction. Staff would provide regular updates to Metro management to inform them of progress and identify any potential risks/issues. Furthermore, staff would provide updates to the Metro Board of Directors. Through the Board reporting process, Metro management, in conjunction with the Board, would have the opportunity to manage financial and technical risks through Board actions and motions.

3.11.4 Key Department Functions

Operations – Metro oversees the daily operation of the ExpressLanes to ensure that they operate as intended and without incident. In performing these duties, Metro utilizes a toll operator to handle the day to day operation of the ExpressLanes, with Metro staff providing guidance and oversight. Specific duties include software development, managing the dynamic message signs and toll pricing, operating the customer service centers located in Gardena and El Monte, CA, handling customer service requests via phone or web, violations processing, customer account management, issuing transponders, coordination with the California Highway Patrol for enforcement, coordination with Caltrans and the Freeway Service Patrol for incident management, and preparation of operations reports. Furthermore, Congestion Reduction staff establish standard operating procedures and business rules for operation of the ExpressLanes facilities and program and manage non-revenue accounts, which are generally for public safety and transit agencies that have vehicles traveling on the ExpressLanes in support of their services on the corridors.

Maintenance – The Congestion Reduction department manages the maintenance of the tolling infrastructure on the I-10 and I-110 ExpressLanes. This includes the toll gantries, signage, in pavement sensors, cameras, enforcement beacons, and dynamic message signs. Roadway related items such as pavement maintenance and striping, median barriers, and graffiti removal are managed by Caltrans in coordination with ExpressLanes staff.

Construction – ExpressLanes staff manages the construction and implementation of new/upgraded ExpressLanes infrastructure that include signage, camera systems, tolling equipment, and violation enforcement. Construction of new ExpressLanes facilities would be managed by the Metro Construction section using Metro Construction staff assigned to the ExpressLanes project with support from Congestion Reduction staff and Caltrans. Additional support from Environmental Compliance and Sustainability Unit will be provided where appropriate.

Marketing and public relations/communications – This includes managing the Metroexpresslanes.net website, working with the Metro Creative Services section to prepare informational and promotional materials, advertisements, maintaining the ExpressLanes Twitter and Facebook social media accounts, conducting customer surveys, and issuing advisory notices to ExpressLanes customers. In addition, this section manages three customer incentive programs: Transit Rewards, Carpool Loyalty, and Low Income Assistance.

Planning – ExpressLanes planning staff are working on the potential expansion of ExpressLanes to other freeway corridors. This includes the preparation of the ExpressLanes strategic plan, planning studies, traffic and revenue studies, concept of operations reports, and environmental reports.

Grants Management – The Metro ExpressLanes program administers two types of grants. The first are direct allocation grants of toll revenue to transit operators operating on the I-110 and I-10 corridors including Metro, Gardena Transit, Torrance Transit, and Foothill Transit as well as for Caltrans to implement improvements through the corridor. The second type is the net toll grant program, which provides toll revenue on a competitive basis, to local entities for active transportation/system connectivity, transit and roadway projects.

Finance – This section is responsible for oversight of ExpressLanes revenue and expenditures, preparation of reports, and annual budgeting with assistance from the Metro accounting section. If revenue bonding is required to construct a new ExpressLanes facility, this section would also

oversee the process to secure revenue bonds and administer bond proceeds, in coordination with the Metro Office of Management and Budget.

3.11.5 Stakeholder Management

Metro Board of Directors – The Metro Board of Directors are responsible for approving/authorizing key elements of the project including the environmental document, toll policies, funding, and design and construction contracts. The Executive Officer, Congestion Reduction plays an essential role in working with Metro executive management and the Metro Board of Directors.

Caltrans – As the owner and operator of the freeway system, any new ExpressLanes facility would require close coordination with Caltrans as well as Caltrans approval of the environmental document and facility design. The coordination between Metro and Caltrans is formalized through a cooperative agreement that defines the roles and responsibilities of each agency, schedule, scope of work, funding, progress reporting, and other terms and conditions. During the various project phases, Caltrans and Metro staff would meet on a regular basis to discuss and achieve consensus on project elements as well as review reports and technical documents.

It will be essential for Metro and Caltrans to work collaboratively and cooperatively and recognize that the participation of both agencies is essential for any new ExpressLanes facility to be built. This should be done at both a staff and management level, as decisions made by staff will need to be routed through each agency's respective management and decision-making body for approval. A key management strategy will be to assign and dedicate staff from Metro and Caltrans with clear roles and responsibilities to reduce confusion and ensure work progresses. Furthermore, it is important to establish clear lines of authority so that each agency understands the other agency's process to obtain management approval.

California Highway Patrol (CHP) – As the primary law enforcement agency for the freeway system in California, the CHP is tasked with enforcement of the I-10 and I-110 ExpressLanes. Currently, the CHP has dedicated two sergeants to ExpressLanes enforcement. The two sergeants are Metro's primary points of contact with CHP and responsible for assigning officers for enforcement duties, budgeting, preparing reports and statistics, and acting as a liaison between officers in the field and Metro. Going forward, Metro would need CHP participation in the PAED through construction phases to ensure that their requirements are accommodated to the extent possible. It is expected that Metro and CHP would continue using the current organizational structure for the implementation of new ExpressLanes facilities.

Corridor Advisory Group (CAG) – A key outreach strategy for the I-110 and I-10 ExpressLanes was the formation of a CAG that included representatives from cities, transit operators, Councils of Governments (COGs), community groups, non-profits, and other stakeholders within the corridor. The CAG participated in the development and implementation of the ExpressLanes and provided essential input to Metro. For any new ExpressLanes facilities built, Metro would convene a new CAG consisting of representatives of the corridor for the proposed new facility. The CAGs would be involved throughout the project development process starting with the PAED and through design and construction. In doing so, Congestion Reduction staff would work closely with Metro Community Relations staff to convene the CAG meetings and ensure that the CAG is engaged, as appropriate.

Southern California Association of Governments (SCAG) – As the Metropolitan Planning Organization (MPO) for southern California, SCAG is responsible for the preparation of the Regional Transportation Plan (RTP). It is important for Metro to work with SCAG to ensure that future potential

ExpressLanes facilities in Los Angeles County complement ExpressLanes projects in adjacent counties and that the ExpressLanes Strategic Plan is consistent with the RTP. Metro and SCAG staff work closely together to accomplish this objective.

California Transportation Commission (CTC) – Currently, Metro does not have the authority to implement a new ExpressLanes facility. To obtain this authority, Metro must apply to the CTC and request authorization to develop and operate a new express lane. The CTC was given the authority to approve new ExpressLanes projects (the authority had previously been with the California Legislature) in October 2015 and the first project to receive approval using this authority is the I-405 Express Lanes project in Orange County. Metro's government relations section maintains working relationships with State elected officials and staff. When Metro is ready to apply for authority to develop and operate new ExpressLanes, staff will coordinate with the government relations section to work with the CTC on the application process as well as with elected officials representing the corridors.

Federal Highway Administration (FHWA) – Federal guidance and policy with respect to express lanes are contained in Moving Ahead for Progress in the 21st Century (MAP-21). For example, MAP-21 specifies that HOV to express lanes conversions are permitted on both interstate and non-interstate facilities provided that:

- The HOV facility is not currently degraded,
- The presence of tolled vehicles will not result in degradation, and
- Automatic toll collection systems are implemented.

The role of FHWA is to ensure consistency and compliance with Federal statutes and policies for the operation and implementation of any new ExpressLanes facilities. At a local level, FHWA has a Los Angeles office and a staff person for freeway projects. The FHWA Los Angeles office is engaged and aware of Metro and the Southern California Association of Governments (SCAG)'s planning for future ExpressLanes projects and would be further engaged during the PAED and PS&E and construction phases of a new ExpressLanes facility. At the federal level, Metro government relations staff maintains working relationships with FHWA staff that could be utilized if needed.

3.11.6 Key Positions

3.11.6.1 **Executive Officer, Congestion Reduction Initiative** – Is responsible for providing executive direction to project management staff and consultants and managing the development of congestion reduction operating plans and implementation schedules, including revenue projections, environmental effects, mobility impacts on legislative requirements and technical feasibility. This position also oversees and manages the development of cost estimates for implementation, operations and administration, and ensures compliance with Metro policies and procedures and applicable state, federal and local regulations and laws. The Executive Officer, Congestion Reduction Initiative reports to the Deputy Chief Executive Officer.

3.11.6.2 **Deputy Executive Officer, Congestion Reduction** – Is responsible for overseeing project managers who manage the operations, maintenance, construction,

communications, and planning of the ExpressLanes. In doing so, this position provides guidance, direction, and technical expertise to the project managers. The Deputy Executive Officer, Congestion Reduction reports to the Executive Officer, Congestion Reduction.

3.12 OFFICE OF EXTRAORDINARY INNOVATION DEPARTMENT

The Office of Extraordinary Innovation (OEI) provides support to the Program Management team in all matters relating to innovation, unsolicited proposals, and public-private partnerships, such as procurement support, project delivery support, research to support program delivery, evaluation of unsolicited proposals, and analysis supporting the incorporation of new technologies on projects. Support to the Program Management Team may include such things as assistance in contract negotiations, the establishment of contract performance measures, consultant advisory services, and other assistance throughout the project delivery process, as requested by the Program Management Team or Metro's Senior Leadership Team.

3.12.1 Innovation

OEI brings innovation to a project when a determination is made with the Program Management Team that an idea has merit and warrants consideration for inclusion as part of the project. Innovation may manifest as new technologies or approaches in products, materials, financial frameworks, consultant services, approaches to problem solving, or a combination of any of these concepts. OEI offers innovative solutions, where applicable, and assists in the incorporation of these solutions on a project.

3.12.2 Unsolicited Proposals

OEI receives and evaluates unsolicited proposals submitted to Metro that may support program delivery or increase the benefits of the program and its individual projects to the community. OEI establishes the parameters to evaluate unsolicited proposals in a value-for-money analysis and documents the go/no-go decision. All proposals related to program management are reviewed with consultation from the program management team. Once an unsolicited proposal is accepted for implementation, OEI assists in monitoring the performance of the proposal as implemented.

3.12.3 Public-Private Partnerships

OEI facilitates the formation of public-private partnerships for project delivery. The structure of each partnership is unique to the project and may be influenced by the origin of the partnership (i.e. unsolicited proposal or Request for Proposals issued by Metro). OEI supports the Program Management Team in forming public-private partnerships by contracting to provide advisory services to the project teams via consultant contracts for financial, legal, insurance, and any other advisory services desired to finalize partnerships for project delivery. OEI supports coordination between consultant advisors and the project teams to compile procurement packages for public-private partnership projects. OEI also supports coordination between consultant advisors and the project teams beyond contract award, through negotiations, to commercial and financial close.

3.12.4 Research

OEI provides resources to the Program Management Team to conduct research on innovation, lessons learned and best practices on any subject related to the delivery of projects in the program.

3.12.5 Performance Management

OEI assists the Program Management Team, specifically the Project Controls teams, in developing performance indicators to measure, analyze, report, and improve the performance of a contractor on a public-private partnership contract.

3.12.6 Key Positions

3.12.6.1 **Chief Innovation Officer** – Is Responsible for leading the Office of Extraordinary Innovation, which seeks to bring best practices in transportation from around the world to Metro. The Chief Innovation Officer leads the unsolicited proposal process and strategic planning functions for the agency. Unsolicited proposals are encouraged to assist Metro in accelerating and improving project delivery, and the Metro Strategic Plan will set the mission, goals, and metrics for the agency for the next decade. The Chief Innovation Officer also provides assistance as needed across the agency in implementing new and challenging ideas. The Chief Innovation Officer reports to the Chief Executive Officer.

3.12.6.2 **Deputy Chief Innovation Officer** – Is responsible for supporting the Program Management Team through the development of public-private partnerships. The Deputy Chief Innovation Officer also serves as the Project Manager for contracts related to consultant advisory services supporting the development of public-private partnerships. The Deputy Chief Innovation Officer reports to the Chief Innovation Officer.

3.12.7 Consultants

The Office of Extraordinary Innovation (OEI) will oversee the procurement processes for public-private partnerships (P3s) related to the Measure M. OEI will procure, execute, and administer the contracts for consultant advisory services in the areas of finance and legal services to support the pursuit, evaluation, and implementation of any P3 project that demonstrates financial and technical merit for implementation. Consultant advisory services are intended specifically to provide expertise to supplement or enhance Metro resources. The services will be procured and used on an on-call basis.

Metro's Chief Innovation Officer will lead coordination efforts with the Consultant. Metro will determine the level of staffing support needed by the Agency and the Consultant to execute the P3 program. The Consultant, in cooperation with Metro, will assign the necessary staff to support all levels of effort required to carry out the project-specific efforts.

3.13 CIVIL RIGHTS DEPARTMENT

3.13.1 Department Overview

The Civil Rights Department reports directly to the Metro Chief Executive Officer. The role of the department is to ensure that every project in the Program Management Plan fully complies or exceeds the Federal, State and Metro civil right requirements. These Civil Rights requirements include, but are not limited to the following:

- Americans with Disabilities Act (ADA)
- Title VI of the Civil Rights Act of 1964
- California Title 24 Access Compliance
- Age Discrimination Act (1975)
- The Federal Highway Act (FHA)
- Section 504 of Rehabilitation Act of 1973
- Environmental Justice Executive Orders
- Metro Policy Civil Rights Policy (CIV) 10
- California Unruh Act
- Metro Accessibility Provisions Required by Transit Standard Design Criteria and Directive Drawings

3.13.2 ADA and Access Compliance

Department responsibilities related to ADA and Access compliance of transit capital projects include the following:

1. Develops and updates appropriate notices for the public outlining their civil rights and identifying how they can file complaints at Metro if they believe their civil rights have been violated.

2. Ensures that all Metro projects are designed and built to comply with the ADA and the California Title 24 Access Compliance as well as providing the unique accessibility features required in the Metro Transit Design Criteria and Directive Drawings. The Office adjudicates and provides advice to designers and builders on interpreting the codes and Metro accessibility requirements. In cases where there are conflicts the department has authority to determine which code takes precedence.

3. Monitors construction sites to ensure that access is maintained for persons with disabilities.

Prior to opening new facilities for the public, staff inspects and ensures that all spaces meet the required code requirements for accessibility and incorporate any required Metro enhancements for accessibility.

3.13.3 Discrimination Compliance

Department responsibilities related to discrimination compliance of transit capital projects include the following:

1. Promotes inclusive public participation to ensure that minority, low income and Limited English Proficiency populations are effectively engaged in public participation for Metro project. Ensures that policies and procedures are in place to conduct this public participation.

2. Ensures that in determining the site of location of Metro facilities the selection of the site does not have the effect of excluding, or denying benefits on the grounds of race, color, or national origin. Ensures that the location of projects requiring land acquisition and the displacement of persons from residences and businesses may not be determined on the basis of race, color or national origin. The Office also ensures that an Environmental Justice Analysis is included in any National Environmental Policy Act (NEPA) processes undertaken by Metro.

3. Reviews all transit projects to ensure that signage and announcements are provided to ensure that persons with Limited English Proficiency are accommodated consistent with Metro's Language Assistance Plan and the Four Factor Analysis. The role of the Department is also to ensure that appropriate Title VI and Environmental Justice Analysis are completed six months in advance of the opening of any new fixed guideway transit system including both rail and bus rapid transit.

3.13.4 Metro Policy CIV 10

Metro Policy CIV 10 reaffirms that The Office of Civil Rights will be involved in the transit projects development, review and approval of engineering and design documents at states identified in the scope of work and final engineering for construction, renovation and alteration projects. The department must approve appropriate accessibility building codes to be included in the project's design prior to the scope of work submittal to procurements and will forward any changes in accessibility rules and regulations during the design and construction phase to the Project Director/Manager.

The Policy also states that the department must approve any change orders that affect any path of travel or accessibility feature of a facility prior to the start of work and inspect and sign off approval of accessibility features for all new construction or renovation projects when applicable.

The department must also be involved in the development, review and approval of specifications regarding accessibility of all new or rehabilitated bus and rail vehicles and inspect a sample of new vehicles before they are placed in service.

3.13.5 Key Positions

3.13.5.1 **Chief, Civil Rights Programs–** Directs and oversees the activities of Metro's civil rights programs, including Americans with Disabilities Act (ADA), Equal Employment Opportunity (EEO), and Title VI, to promote equal access and opportunity, and ensures compliance with state and federal laws and regulations preventing unlawful discrimination; directing the administration and implementation of Metro's programs and services in compliance with the Americans with Disabilities Act (ADA), Section 504 of the Rehabilitation Act of 1973, California Unruh Act (Civil Code Section 51 et seq), and California Disabled Persons Act (Civil Code Section 54 et seq), and ensuring agency-wide coordination of Metro's Title VI programs. The Chief, Civil Rights Programs reports to the Chief Executive Officer.

3.13.5.2 **Director Civil Rights and EEO Programs** – Is responsible for ensure that all Metro services and facilities are compliant with the Civil Rights Act of 1964, including Limited English Proficiency. The Director is also responsible for ensuring that all other Metro, Metro staff and Metro transit contractors comply with all other State and Federal civil rights statutes and regulations as well as Metro civil rights policies prohibiting discrimination. The Director reports to the Chief, Civil Rights Programs.

3.13.5.3 **Senior Manager, Accessibility** – is responsible for ensuring that all Metro services and facilities are compliant with American's with Disabilities Act, California Title 24 (California Building Code Accessibility Sections) and Metro policies concerning accessibility for persons with disabilities. The Senior Manager is responsible for reviewing all plans for capital projects including both new construction, and renovation or rehabilitation work to ensure compliance. The Senior Manager, Accessibility reports to the Chief, Civil Rights Programs.

3.14 MANAGEMENT AUDIT SERVICES DEPARTMENT

3.14.1 Overview

Metro's Chief Auditor plans and directs the overall operation of Management Audit Services (MAS) which is responsible for ensuring the integrity and efficiency of Metro policies and practices, the protection of assets and revenues, compliance with law, and adequacy of internal controls. The Chief Auditor reports its activities to the Chief Executive Officer (CEO) and the Board. MAS provide independent and objective assurance and consulting services designed to add value and improve Metro's operations. This is accomplished by bringing a systematic, disciplined approach to evaluating and recommending improvements to the effectiveness of risk management, controls and governance processes. MAS performs and/or manages the following types of engagements: performance audits (efficiency and effectiveness of operations, projects, or programs, suitability of the design and effectiveness of internal controls, reliability of operational and financial information), financial and compliance audits (grant agreements, Memorandum of Understanding, audits required by Proposition A, and Proposition C, Measure R, etc.), and contract audits (pre-award, incurred cost, close out, and contract change orders).

3.14.2 Scope

MAS determine whether Metro's network of risk management, control, and governance processes, as designed and represented by management, is adequate and functioning to ensure:

- Risks are appropriately identified and managed;
- Significant financial, managerial, and operating information is accurate, reliable and timely;
- Resources are acquired economically, used efficiently, and adequately protected;
- Programs, plans, projects and objectives are achieved;
- Quality and continuous improvement are fostered;
- Significant legislative or regulatory issues impacting Metro are recognized, addressed appropriately and interaction with governance groups occurs;
- Employees' actions are in compliance with policies, standards, procedures and applicable laws and regulations; and
- Opportunities for improving management control, streamlining processes, and improving public perception may be identified during audits. These will be communicated to the appropriate level of management.

3.14.3 Commitment to Quality

MAS adhere to the following professional standards and codes:

- Government Auditing Standards promulgated by the Comptroller General of the United States;
- Institute of Internal Auditors International Professional Practices Framework;
- Information Systems Auditing Standards promulgated by the Information Systems Audit and Control Association;
- Metro's Employee Code of Conduct and Administrative Code;
- Institute of Internal Auditor's Code of Ethics, and
- Management Audit Services' Audit Policy Manual and applicable procedures.

3.14.4 Authority and Accountability

MAS audits all departments, programs, functions, systems, contracts and activities based on the board approved annual audit plan or specific requests that have been approved by the CEO.

Management Audit Services is authorized to:

- Have full, free and unrestricted access to all information, functions, operations, systems, property, personnel and other relevant materials necessary to accomplish its work. All employees will cooperate fully in making available material or information requested by Management Audit Services or any external auditors managed by Management Audit Services. Access to contracted third parties will be handled in accordance with contractual terms. Management Audit Services staff signs Confidentiality Statements annually. Documents provided to Management Audit Services will be handled in the same prudent manner as by those employees normally accountable for them;

- Allocate resources, set frequencies, select subjects, determine scopes of work, and apply the techniques required to accomplish audit objectives; and

- Obtain the necessary assistance of personnel in functions where audits are being performed, as well as other specialized services from external consultants.

Management Audit Services, in the discharge of duties, is accountable to the Deputy Chief Executive Officer, CEO, and the Board of Directors to:

- Report significant issues related to the processes for controlling the activities, including potential improvements to those processes, and provide information concerning such issues through resolution; and

- Provide periodic information on the status and results of the annual audit plan and the adequacy of progress as it relates to management action plans.

3.14.5 Independence

Management Audit Services is independent of the activities it reviews. Specifically, Management Audit Services staff may not review areas where they were responsible for the design or operation of the area. Auditors are responsible for maintaining their independence and integrity in all services they provide.

All Management Audit Services activities shall remain free from interference relative to matters of audit selection, scope, procedures, frequency, timing, or report content to maintain independence and objectivity. The Chief Auditor shall report any impairment to independence, or unjustified restriction or limitation to audit selection, scope, procedures, frequency, timing or report content promptly to the CEO and the Board.

As a means of ensuring independence, Management Audit Services will report to the CEO and the Board of Directors. This structure permits the rendering of impartial and unbiased judgment essential to the proper conduct of audits. The Board of Directors' will review and concur in the appointment, replacement or dismissal of the Chief Auditor of Management Audit Services.

3.14.6 Responsibilities

Management Audit Services is responsible for:

- Developing and executing a flexible risk based audit plan including any risks or control concerns identified by management; and submitting that plan to the Deputy Chief Executive Officer (DCEO) and Board of Directors for review and approval;

- Preparing or updating the agency-wide risk assessment annually and incorporating the results into the annual audit plan;

- Implementing the annual audit plan, as approved, including as appropriate, any special tasks or projects requested by management;

- Reporting significant audit findings to management and the Board of Directors;

- Providing management with adequate time to respond to audit findings and including management's response in the final report;

- Following up on audits to ensure agreed-upon corrective actions have been taken and provide periodic follow up reports;

- Presenting quarterly reports to the Board highlighting progress on the Audit Plan;

- Managing and ensuring the completion of all legally mandated financial and compliance audits for Metro and all funding recipients from Metro such as the 88 Cities within the County of Los Angeles plus the County of Los Angeles. Legally mandated audits include Proposition A, Proposition C, Measure R, Transportation Development Act (TDA), State Transit Assistance (STA), State Transportation Improvement Program (STIP), Comprehensive Annual Financial Reports (CAFR), Single Audit, (Measure M), etc. Management of this type of audit includes but not limited to the following MAS activities:

    - Conducting annual workshop for all funding recipients from Metro to discuss the audit objective, scope, process, timeline, lessons learned from prior year's audit, etc.

    - Developing and revising the Statement of Work as applicable for the external auditors are selected through competitive process to conduct the audits.

    - Ensuring that independent and competent external auditors are selected to conduct the audit.

    - Providing continuous and adequate oversight of external auditors' work for consistency and timeliness.

    - Coordinating the reporting of audit results to the independent oversight committees overseeing various funding sources. This includes ensuring that questions or

additional requests for information by members of the independent oversight committees are responded to.

- Ensuring that the required Public Hearings are conducted to allow for public comments and questions about the audit results.

- Reporting to the CEO and the Board that all required legally mandated audits were completed.

- Maintenance of Metro's Oversight Committee Website to allow the public to electronically access information related all audits of Proposition A, Proposition C, Measure R, and Measure M.

- Maintaining a professional audit staff with sufficient knowledge, skills, experience, and professional certifications to meet the requirements of this Charter;

- Conducting objective and constructive assurance services, which include performance and attestation audits;

- Consulting services, which are advisory in nature, can be provided as long as the services do not impair Management Audit Services' independence and fall within the scope outlined in the Charter;

- Exercising due professional care in all of the work products;

- Conducting at all times in a professional manner;

- Coordinating all external audits of Metro.

- Considering external auditors and regulators' scopes of work, as appropriate, for the purpose of providing optimal audit coverage at a reasonable overall cost; and

- Referring suspected fraud, waste, or abuse promptly to Metro's Inspector General.

3.14.7 Key Positions

3.14.7.1 **Chief Auditor** – Is responsible for planning and directing the overall operation of Management Audit Services Department (MAS). The Chief Auditor is also responsible for ensuring the integrity and efficiency of Metro policies and practices, the protection of assets and revenues, compliance with law, contracts and grant agreements, and the adequacy of internal controls. The Chief Auditor also determines whether Metro's network of risk management, control and governance processes, as designed and represented by management is adequate and functioning as intended. The Chief Auditor ensures that the Annual Agency-Wide Risk Assessment and the resulting Annual Audit Plan is completed for the Board adoption. The Chief Auditor reports to the Chief Executive Officer. The Chief Auditor also reports MAS' activities to the Board.

3.14.7.2 Senior Manager, Audit – Is responsible for planning and managing contract (pre-award and incurred cost), financial, operational efficiency and effectiveness, compliance, and performance audits and participates in the completion of Annual-Agency-Wide Risk Assessment and development of the Annual Audit Plan for Board approval. The Sr. Manager Audit also Oversees the work of independent external auditors (Certified Public Accountant (CPA) firms) who provide financial and compliance audit services of Metro, its component units and Metro funds recipients; facilitates audit workshops for Metro funds recipients; prepares presentation of audit results to Metro Board and Taxpayer Oversight Committees; recommends and develops audit policies, procedures and programs and reviews all audit work and reports completed by subordinate staff and ensures auditors' work papers comply with audit standards. This position also establishes and monitors goals, work plans, schedule and strategies and prepares audit reports to management, executive staff and board members. The Sr. Manager, Audit reports to the Chief Auditor.

3.14.7.3 Audit Support Manager – Is responsible for ensuring accuracy of information entered into Team Central Database and manages staff who proactively follow-up on audit recommendations and ensures that they are being implemented. The Audit Support Manager also facilitates audit workshops for Metro funds recipients; prepares presentation of audit results to Metro Board and Taxpayer Oversight Committees; plans, directs, and manages the financial and administrative activities for the organizational unit; collaborates with department units and Office of Management and Budget or Human Resources regarding operating and capital budget, budget variances, and staffing requirements; and conducts fiscal and performance analysis on assigned organizational units to identify shortfalls and best practices, reports to the Chief Auditor the findings and recommendations, and assists in the implementation of changes and resolution of differences. The Audit Support Manager reports to the Chief Auditor.

3.14.8 Consultants

Management Audit Services' (MAS) Chief Auditor and Senior Audit Manager will oversee the work of the Independent External Auditor Consultants (CPA firms) who will provide the following audit services for Measure M funds and projects:

1. Annual Financial and Compliance Audits of Metro's Schedule of Revenues and Expenditures for Measure M Special Revenue Funds

2. Annual Financial and Compliance Audits for funding recipients– Local Return Funds for cities and County of Los Angeles

3. Performance Audits for Measure M Projects

In addition, the Consultants/Firms will provide the following services:

1. Presentation of audit requirements, timeline, scope, and lessons learned in the Annual Audit Workshop hosted by Metro (facilitated by Metro's Chief Auditor)

2. Presentation of audit results to Metro Board and the Independent Oversight Committee

3. Attendance/Presentation in Annual Public Hearing and Regular Oversight Committee Meetings

MAS will monitor and direct the completion of the above audits to: 1) ensure timely completion to meet Ordinance Audit Requirements and 2) ensure that the quality of work and reports satisfy the Ordinance Audit Requirements and are responsive to the needs of the Independent Oversight Committee. MAS will make all audit reports accessible and available to the public through the Oversight Committee webpages. MAS' Senior Audit Manager and Audit Support Manager will work together with Communications department and the Board Office to maintain the Oversight Committee webpages to post the most updated information including meeting agendas, public hearings, audit reports, and other presentations, etc.

3.15 INFORMATION AND TECHNOLOGY SERVICES (ITS) DEPARTMENT

3.15.1 Overview

Information and Technology Services (ITS) Department provides technology infrastructure & system services including telecommunications & data communications, security and end-point services and solutions that enable operations and effective usage, when constructing or enhancing all Metro facilities, building and offices. These services are applicable to all Metro capital transit programs and projects. This function is called "IT Activation" and is delivered through the major component of the Information and Technology Services (ITS) Program / Project Management Office (PMO) department. ITS PMO reports to Metro's Chief Information Officer (CIO). The following sections will address the scope of services, in addition to roles and responsibilities, methodology and approach for design, implementation and management of the IT Activation function.

3.15.2 IT Activation

IT Activation function is responsible for the delivery of many technology services. The following list represents the major services;

3.15.2.1 Telecommunications and Data Communications

- **Communication Facilities**
    - Telco Utility Services Integration**:** Street manholes and pathway conduits that feed cabled wire infrastructure from the street to the building facility.
    - MDF – Main Distribution Facility**:** Secured room/closet locations where the network connection is first distributed inside the building from the street. Generally, near the data center, which is the core of the network. Equipment includes Heating, Ventilation and Air Conditioning (HVAC), equipment racks and Universal Power Supply (UPS), pathway and grounding systems.

- IDF – Intermediate Distribution Facility**:** Secured room/closet location when a vertical cross connect or large horizontal cross connection is required. Generally used in large buildings where each floor has connections (usually a secured room/closet) to network. The network drops on each floor connect to the IDF, which connects to the MDF through cable and switching equipment to eventually feed the data center to servers and application systems. Equipment includes HVAC, equipment racks and UPS, pathway and grounding systems.

- Computer Room/Data Center**:** Secured room where core processing and system programs and databases are housed.

- Structured Cabling Infrastructure**:** Fiber, coax or copper wire to hard wire network equipment.

- **Network Services**

  - Communication Switching Systems**:** Routers, gateways, switches, firewall switching equipment that support electronic transmission network equipment to route, forward, transport and block data packets.

  - Wireless Transmission Systems**:** Wireless services (access points) that allows Wi-Fi compliant device to connect to a wired network.

  - Long Range Transmission Systems**:** Cellular, microwave, radio, sonnet, and leased telco digital circuit services to transmit data over 1 mile.

- **Communication Services**

  - Voice/Telephone Systems**:** Telephone services to transmit audio transmission.

  - Public Address Systems

3.15.3 Security

- Physical

  - Access Control Systems**:** Electronic door locks accessible through centralized badge system.

- Surveillance

  - Closed Circuit Television Systems**:** Video cameras to transmit visual signals to monitors and recording services to monitor and record movement.

- End Point Services

  - Telephone Communication Systems

- Business Communication Systems**:** Servers, Storage Systems, Computers, Printers, Scanners, Faxes, Scanners
- Audio Visual Systems**:** Projectors, screens
- Business Operations Systems/Applications**:** Enterprise Resource Planning, Financial, Transportation Operations

3.15.4 Activation Roles and Responsibilities

IT Activation consists of technical engineering and project management resources. It focuses on the technology budget, design requirements, procurements, schedules, implementation oversight, and quality adherence required to activate projects. These services coordinate together with the goal to deliver a successful project on time and on budget.

While IT Activation services are primarily performed by the ITS PMO Department, other sections have active roles and responsibilities in delivering the complete service. The PMO groups works in close collaboration and coordination with these sections in a coordinated effort to successfully complete the final executed deliverable:

- ITS Operations and Service Delivery Section; installs and quality checks components of the Network & Communication Services
- ITS Infrastructure and Architecture Section: programs components of the Network Services and Communication services.
- Transit Operations RailComm Section: programs, installs and quality checks many components of technology in the Rail Facility locations.

3.15.5 Integration with Transit Project

IT Activation services are an integral part of all Metro Transit projects. IT Activation function requirements, dependencies, budget and schedule should be incorporated into the overall Metro Transit Project to create a cohesive integrated Project Management Plan . Key integration actions, roles and responsibilities include:

- Inclusion of IT Activation specifics within the Metro integrated Project Management Plan:
  - Requirements and standards in the project designs and statements of work for all RFPs
  - Cost, schedule and dependencies in the overall project budget and schedule estimates.
- Verification by both IT Activation function and the Project Management Plan that selected vendor(s) comply with Activation requirements and standards.

- Addition of IT Activation function as a member of the project / program committee involved in key project communication events (meetings, status updates, etc.).

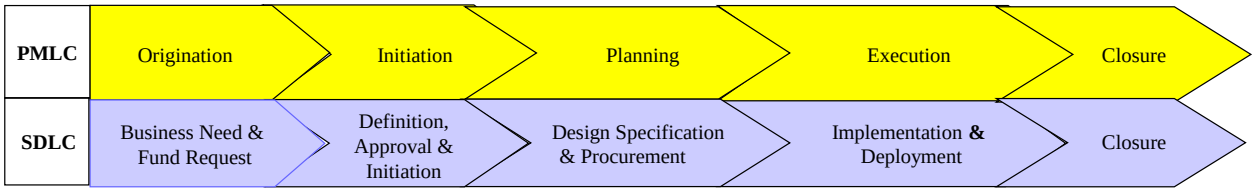
- Inclusion of IT Activation representative(s) in the review sessions of key project deliverables impacting their services.

- Ongoing, open and transparent communication across all project components.

3.15.6 Lifecycle Project Management

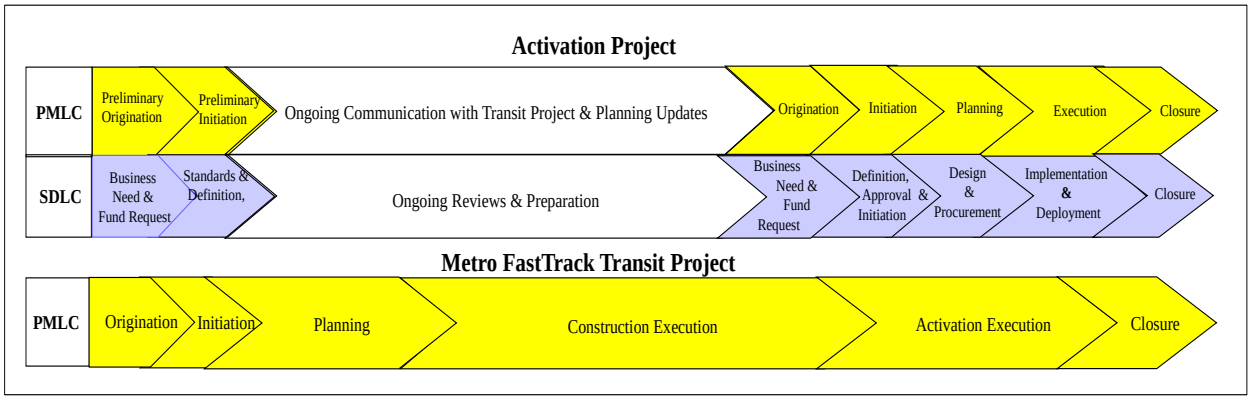
There are five project management lifecycle phases for IT activation as shown in Figure 11.

Figure 11: Project Management Lifecycle Phases for IT Activation



IT Activation participation in the major transit projects varies during transit project life cycle. Coordination is required during transit project origination and initiation phases to ensure the integration of requirements, standards, schedule and budget in the Metro Transit Project Management Plan. Integrated planning and communication is necessary during transit project design and construction phases to remain abreast of project changes and preparation for when sites are ready. The majority of Activation tasks start towards the end and at the completion of the main project, as depicted in Figure 12.

Figure 12: Project Management Lifecycle Phases – Activation Tasks



Transit project lifecycles take years to complete and technology solutions are constantly improving and changing. To minimize risk of obsolescence, IT tracks transit project progress to proactively

monitor new technology trends and their impact on the project during its waiting period. IT revisits scope to ensure that the best solutions are adopted for Metro.

IT Activation project phases vary with the size and complexity of the project. The large and complex projects will exercise all phases shown above. The small and less complex projects will exercise only some of the phases. Below are the key phases activities associated with a major complex project:

3.15.6.1 Origination Phase

During this phase Business request is clarified, evaluated and budget is confirmed:

- Scope & Requirements clarified and evaluated
- Estimates of effort, cost and time defined
- Availability and source of the project budget is confirmed

3.15.6.2 Initiation Phase

During this phase high level solution is identified, evaluated and selected:

- Business Requirements Document created
- Solution options identified, evaluated and selected
- Previous estimates refined
- Draft Statement of Work (SOW) prepared
- Customer approval and signoff obtained
- Procurement strategy developed
- Project charter and plan created
- Project director/manager assigned and project Kickoff conducted

3.15.6.3 Planning Phase

During this phase project is designed and procurement process for vendor selection is conducted:

- Engineering Design & Specification developed
- Bill of Material (BOM) developed
- Schedule and budget estimates confirmed

- RFP Prepared and issued
- Vendor(s) selected and contract awarded

3.15.6.4 Execution Phase

During this phase project is implemented and deployed:

- Products installed, tested and implemented by in-house or outsourced teams
- User accepted and deployed

3.15.6.5 Closeout Phase

During this phase project is implemented and deployed:

- All Relevant Information and Documentation prepared and placed in Final Repository
- Final project performance statistics (quality, schedule & cost) identified and published
- Project Completion Survey & Meeting Results obtained
- User satisfaction obtained
- Lessons learned Report created and published
- Final Project Performance & Quality Report prepared
- Outstanding team performances recognized and rewarded
- Measure M close-out by Metro Board of Directors

3.15.7 Governing Policies and Standards

The ITS PMO department has developed policies and standards to insure Metro's technology product solutions, engineering specification, security protocols and delivery methodologies are compliant with all government requirements and ensure effective integration of services, facilitate repeatable processes and minimize maintenance cost. These standards are shared with other Metro departments, vendors and contractors. They include:

3.15.7.1 Information and Security Policy

This policy establishes an Information Security Program that incorporates key security components to ensure confidentiality, integrity and availability of Metro information resources. It requires that the Information and Technology Services Department's (ITS) Chief Information Officer (CIO) take the lead on governance of Metro's Information Security Program. It defines guidelines, controls, roles and responsibilities for managing and protecting the operations of Metro information resources. It

also promotes agency-wide awareness that all users share in the responsibility of securing Metro information resources.

Metro's Information Security Program provides security for Metro information resources. It is intended to ensure the confidentially, integrity and availability of information resources; the welfare of employees, customers, business partners and other stakeholders; and it supports Metro business objectives and day-to-day operations. The program includes a comprehensive approach to security, incorporating multi-tiered protection to prevent the abuse and/or circumvention of information resources and system controls. Technology management, information management and process controls are designed to ensure accountability for protecting Metro information resources.

3.15.7.2 Standards Compliance and Asset Management

The Information Technology Governance Committee adopted the Metro Information Technology Standards that govern the acquisition, deployment, and utilization of all information technology assets. Compliance to Metro's Information Technology Standards for hardware, software, architecture, infrastructure, and security will allow the Information Technology Services (ITS) department to oversee these assets and maintain systems manageability, integrity, interoperability, and network security in support of the company's business goals and objectives.

Information technology assets are essential business tools that allow Metro to fulfill its mission. To manage these assets, ensure compliance to licensing, maintenance agreements, and maintain network security requirements, all Metro information technology assets must be accounted for throughout their service life cycle.

3.15.7.3 Architecture and Infrastructure

The Information Technology Architecture and Infrastructure standards provide guidelines to govern the procurement and deployment of Metro’s Information Technology resources, such as network and hardware platforms, operating systems and software applications to support systems interoperability and data sharing throughout Metro.

The Information Technology Services (ITS) Department has prepared Metro’s Architecture and Infrastructure Standards document to establish a working knowledge of the design and structure of applications and hardware utilized by all business units at Metro. The ITS Department’s primary objective is to protect Metro’s investment in information technology resources already utilized at Metro, while leveraging up those resources as the industry standards continue to change and upgrade over time. Metro’s resources include, but are not limited to, processing and network hardware, software, application development methodologies, communication protocols, database systems, users’ interfaces, modeling tools, etc.

The reasons for establishing and managing Metro’s architecture include:

- System diversity among applications mandates that standards be established;
- Data sharing capabilities become more critical each day;
- Cross-platform functionality requires the bridging of platform gaps to increase productivity;
- Multiplying choices may be confusing and demand guidance;

- The responsibility for maximizing the level of integration is a fundamental ITS' role;
- The need for senior management to be involved in the information technology strategic system; and
- The opportunity to streamline different platforms into a manageable entity with Enterprise class backup, restore and Disaster Recovery capabilities.

There are a number of critical success factors relative to the ITS architecture. First, ITS and customer involvement are important in establishing the architecture. Metro standards should be complied with to the greatest degree practical. For this purpose, this document will be evaluated and updated annually to ensure that Metro's environment remains relevant and current with technology and the needs of Metro's business units.

3.15.8 IT Activation Project Management Plan

IT Activation Project Management Plan contains all project tasks performed, milestones achieved and deliverables produced throughout the project life cycle from the Initiation through Closure phases of the project. The Project Management Plan and project charter are created during the Initiation phase of the project and monitored and updated through all project phases. Project Management Plan utilizes standard methodology and controls that are customized to meet the IT Activation needs. Based on project size and complexity, Project Management Plan includes some or all of the following project controls and deliverables:

3.15.8.1 Project Controls

- Scope Controls
- Schedule controls
- Cost and budget Controls
- Contract change control (contract agreement)
- Quality controls
- Risk controls
- Responsibility and accountability controls
- Project Monitoring and Reporting
- Dependencies, issues and decisions controls
- Project Coordination and integration controls

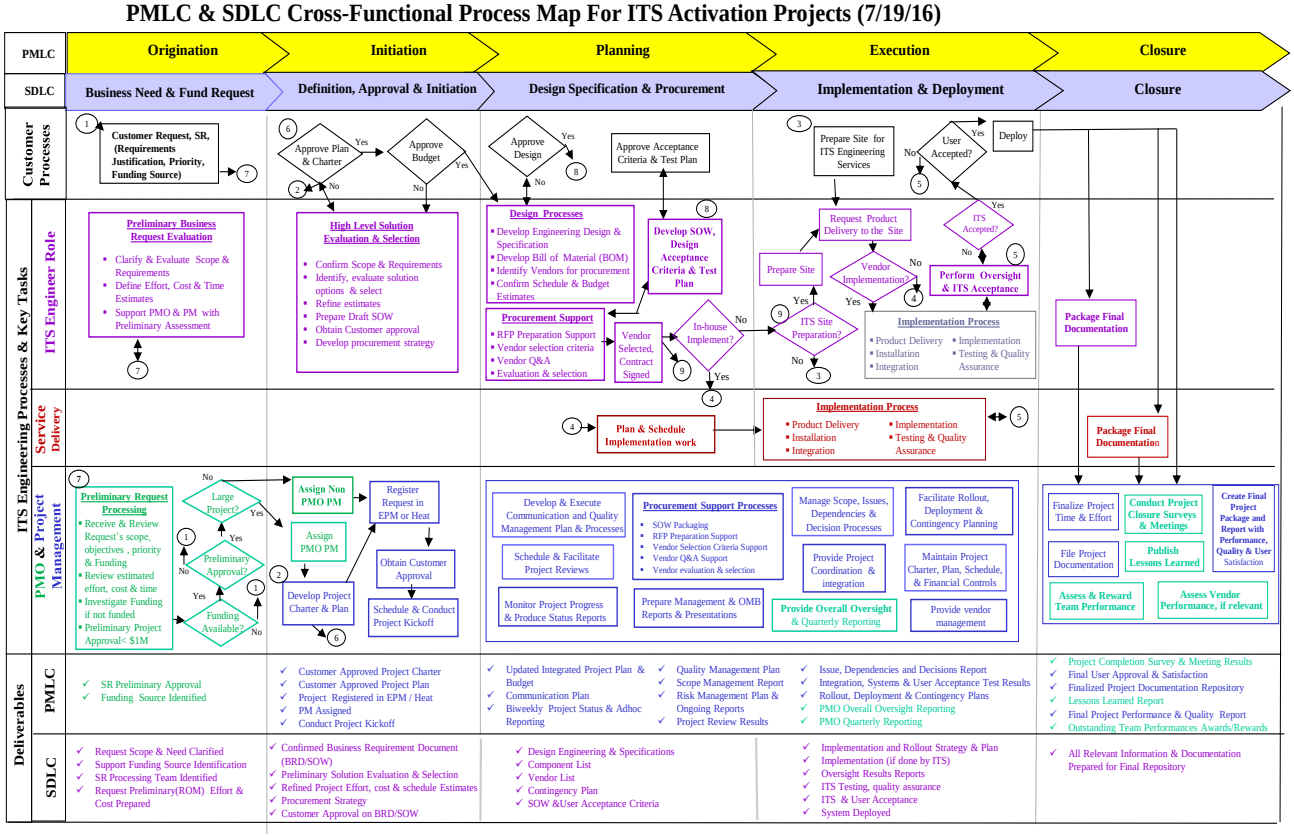
3.15.8.2 Project Deliverables

- Communication Management Plan
- Project Status & Ad hoc Reporting
- Quality Management Plan
- Scope Management Report
- Risk Management Plan & Ongoing Reports
- Project Review Results
- Issue, Dependencies and Decisions Report
- Integration, Systems & User Acceptance Test Results
- Rollout, Deployment & Contingency Plans
- PMO Overall Oversight Reporting
- PMO Quarterly Reporting
- Project Completion Survey & Meeting Results
- Final User Approval & Satisfaction
- Finalized Project Documentation Repository
- Lessons Learned Report
- Final Project Performance & Quality Report
- Outstanding Team Performances Awards/Rewards

3.15.9 IT Activation System Delivery Workflow

A standard methodology is utilized to plan, manage and deliver IT activation projects. This methodology is depicted below in the format of swim-lanes. It includes a cross-functional process map and workflow view of key processes, tasks and deliverables for the various ITS departments involved across the five phases of the life cycle. A sample IT Activation System Delivery Workflow is show in Figure 13.

Figure 13: IT Activation System Delivery Workflow



3.15.10 Key Positions

3.15.10.1 <u>Chief Information Officer</u> - Is responsible for providing strategic direction for Metro's use of information technology; plans, develops and administers all departmental policies and procedures; forecasts Metro's information systems needs concerning hardware, software and human resources staffing; oversees administration of all departmental functions, including information systems development and support, infrastructure engineering and operations, and technical support; oversees preparation and administration of the departmental budget; directs the acquisition of all computer hardware and software; coordinates the work of contractors and consultants in the study, design, development, implementation, and maintenance of the information systems and related projects; and chairs the Information Systems Steering Committee. The Chief Information Officer reports to the Chief Executive Officer.

3.15.10.2 <u>Director, Project Management Oversight</u> – Is responsible for the activation of technology infrastructure & system services that enable operations and effective usage, when constructing or enhancing all Metro facilities, building and offices. Technical areas of responsibility include Data Facilities, telecommunications & data communications services, Network Services, Surveillance & Access Control Security Systems, and End

Point Services such as computing, printing and audio visual services. Primary duties include providing design, engineering, project management, budgeting, procurement, acquisition of equipment and implementation services. The Director of IT Project Management Oversight manages the ITS / PMO department and reports to Metro's Chief Information Officer (CIO).

3.15.11 Consultants

The Information and Technology Services (ITS) Department manages the IT Activation function through the operations of the Project Management Office (PMO). The PMO will require consultants to support additional workload required to design, engineer, implement and oversee information technology components of the construction.

3.16 Operations and Maintenance Department

The Operations Department is responsible for the day-to-day management and delivery of Metro services, providing safe, clean, efficient and cost-effective transportation to the residents, visitors and workers in Los Angeles County.

All new projects with transportation delivery components require Operations staff involvement as part of the project team from the initial planning stages, through feasibility, alternatives analysis, environmental, advanced conceptual, preliminary and final engineering phases, When the project advances into construction, Operations staff continue to provide support to the Project Management Team to resolve issues as they arise, to ensure proper systems operability and integration.

A key requirement of any new transit project is a comprehensive Operating and Maintenance Plan (OMP). The primary purpose of the OMP is to detail the project components that will provide for a safe and efficient operation, including integration of the new project into the existing transit system and infrastructure An OMP is requirement for every transit project, prepared by the contractor/concessionaire managed by project and operations personnel and must reflect completed conditions. A sample Operations and Maintenance Plan is illustrated in Figure 16. Refer to the appropriate Project Management Plan for specifics of a particular project.

3.16.1 Operations and Maintenance Plans

Project Operating and Maintenance Plans (OMP) describes how all Project components are designed and integrated into the overall transportation system, as well as how the Project service will be scheduled, operated, maintained, and staffed. The agency-wide Environmental Management System provide additional support in the deployment, monitoring, and tracking of environmental and sustainability commitments in a project. Environmental Compliance and Sustainability Section staff coordinates with the Operations and Maintenance Department in the OMP implementation in the context of the EMS requirements.

At a minimum the Plan will address the following topics:

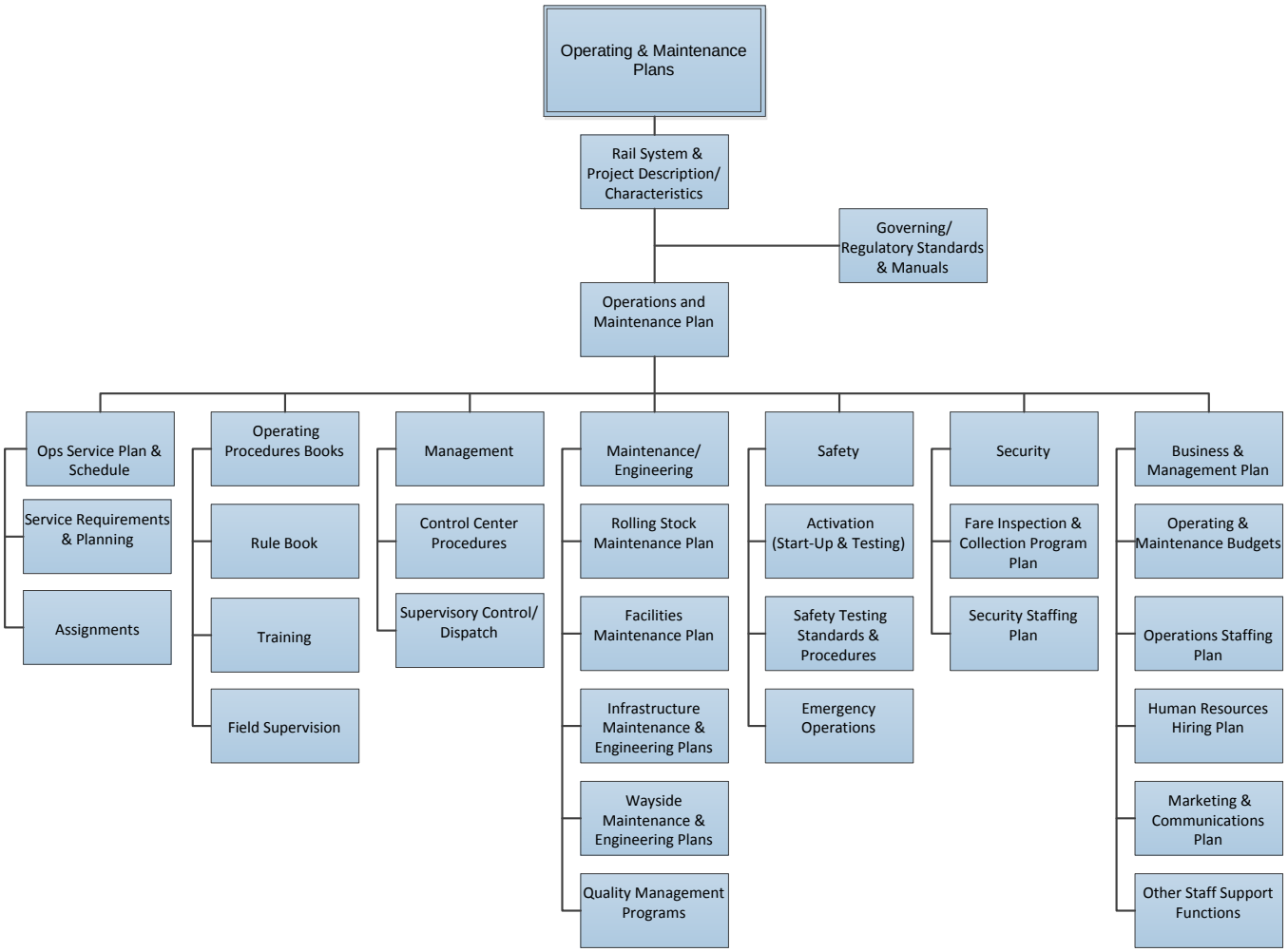
- System and Project Description and Characteristics

- Operational Service Plan & Schedule
- Operating Rules/Procedures
- Training
- Field Supervision
- Control Center Procedures
- Rolling Stock Management Maintenance & Engineering
- Wayside Maintenance & Engineering
- Safety Testing Standards & Procedures
- Activation Plan (Start-up and Testing)
- Emergency Operations / Service and Schedule Recovery Procedures
- Security Standards & Procedures
- Fare Collection Plan
- Business & Management Plan
- Staffing Plan
- Staff Support Functions

The OMP must be consistent with the American Public Transportation Association (APTA) Manual of Standards and Recommended Practices for Transit Systems (the APTA Manual).

The following (Figure 14) is a brief illustration of the critical components of the OMP:

Figure 14: Operations and Maintenance Plans



3.16.1.1 System and Project Description and Characteristics

Provides description of the Metro System and new Project design/details along with interface issues

3.16.1.2 Operations Service Plan and Schedule

Discusses aspects of the Project operation. This includes:

- Ridership and boarding projections
- Ridership capacity
- Travel times
- Operational patterns and periods
- Train requirements
- Span of service
- Maintenance periods
- Single track headways
- Connecting services
- Interline operations
- Duty assignments
- Relief locations
- Special event service
- Control Center interface
- Field Supervision
- Revenue service delivery requirements and schedules for initial and design year.

Each category is discussed with specific detail necessary to ensure proper understanding, in turn allowing for appropriate planning and implementation.

3.16.1.3 Maintenance/Engineering

Discusses aspects of maintenance required to ensure ongoing successful operation of the Project. This includes:

- Track
- Traction Power
- Signals / Grade Crossings
- Train Control
- Rail Communications
- Vertical Transportation Systems
- Stations
- Rail Vehicles
- Non-Revenue Vehicles
- Maintenance Facilities
- Wayside Facilities
- Security Facilities
- Right-of-Way Structures
- Right-of-Way Landscape
- Data Management reporting Requirements

The discussion will include warranty, preventive maintenance, inspections, reliability, quality control, monitoring, subcontracting, personnel and supervision / management requirements. All maintenance will be in accordance with established plans, procedures, policies, and labor collective bargaining agreements.

Metro has established programs to inspect, service, clean, repair, upgrade and maintain all facilities in accordance with or exceeding Original Equipment Manufacturer (OEM) maintenance and warranty standards, directives of the Federal Transit Administration (FTA) or other relevant authorities, and the prevailing industry best practices as defined by respective APTA standards.

3.16.1.4 Activation Plan (Start-Up and Testing)

The purpose of this document is to provide the guiding plan for delivering and activating a major project into regular revenue operations. It also identifies the development of other plans or tasks to support the start-up of a new rail line or bus rapid transit project including:

- Staffing
- Transportation
- Maintenance/Engineering
- Training
- Safety / Regulatory Compliance / Law Enforcement / Drills
- Budget & Finance
- Start-Up Testing
- Rolling Stock Testing
- Pre-Revenue Operations
- Revenue Operations
- Bus-Rail Service Integration
- Public Information
- Opening Ceremonies & Events
- Interagency Agreements
- Project Final Acceptance

Start-up and Testing has several components and which cover a period of time beginning when the constructor needs Operation Department support for systems testing and continues until implementation of Revenue Service. Start-up occurs in parallel to the testing phase in order to have ample time so that all of the Metro departments become familiar with and are prepared for the addition of a new segment or corridor. Testing includes Material Certification, Acceptance and Systems Integration Testing, Operations Scenario Testing, Substantial Completion Turnover, Training Pre-Revenue Testing, and California Public Utilities Commission (CPUC) certification which all need to be complete in order for Start-Up to be completed and for Revenue Service to begin.

Start-Up

Start-up of a new corridor or segment is a major endeavor involving many departments at Metro. Start-up begins during the Systems testing phase of the construction project as deemed appropriate by the Program Management Team. To facilitate this phase of the project, the Program Management Team designates a Start-Up Coordinator/Point Person (Coordinator) to manage the start-up program.

Depending on the size and complexity of the corridor or segment, start-up and testing can begin many months before revenue service. The Start-up team reviews and tests all of the elements that go into opening a new segment in order to evaluate all of the necessary components and systems are ready for implementation. The group evaluates all elements in order to identify problems or issues that require correction prior to the beginning of revenue service. Project Team members typically include staff from each of the following Metro departments:

- **Operations Sections** (includes but not limited to Rail Transportation, Rail Fleet Services, Maintenance & Engineering (including Facilities Maintenance), Vehicle Engineering & Acquisition, and Service Development) - Supports integrated and pre-revenue testing and prepares for revenue operations; prepares staffing plan, hires and trains personnel for the new corridors and routes. Service Development includes the Service Planning unit within Operations Department that is responsible for developing coordinated train and bus schedules and takes the lead on public meetings to present the proposed operating plans.

- Finance and Budget / Office of Management and Budget Section - Monitors and implements budgets for the new operation.

- **Vendor/Contract Management** - Supports execution of new contracts.

- **Risk, Safety & Asset Management and Systems Security & Law Enforcement** - Oversees safety, asset management, risk, and security issues, staffing, and equipment; reports and monitors safety certification efforts.

- **Communications** - Develops marketing programs for the new services and plans opening day events and celebrations.

- **Program Management / Transit Project Delivery Section** – Completes or oversees the contractor responsible for the construction of the Project and prepares to turn the Project over to Operations.

Testing

The Project Team holds regular meetings with key Metro representatives, to discuss findings and rectify problems. The Coordinator is also responsible for monitoring and managing the schedule. Senior Metro management, including the Chief Operations Officer and/or the Chief Executive Officer, may get involved to ensure timely progress towards start-up and revenue service.

There are several steps in the Operational Testing phase of the Project that need to all be successfully completed in order to begin Revenue Service. These include:

- Acceptance Testing: This includes all of the necessary tests that are required to ensure proper functionality of a subsystem element. Tests range from component tests to subsystem Factory Acceptance Test to subsystems field tests.

- Systems Integration Testing: Metro operations personnel and equipment work with constructors during this project phase. Systems integration testing occurs at the end of major construction efforts, including final track-work, switches, signals, powering-up of traction power systems, train control systems, communications and safety systems. This phase tests all systems for the ability to run powered trains through stations, switches, ventilation zones, at-grade crossings or other systems, in accordance with the Project design. Emergency drills are also conducted.

- Operational Scenario Testing: Metro operations personnel and equipment work with constructors during this project phase. Operations scenario testing follows the successful completion of integration testing and involves running multiple train operating scenarios to test the integrity and redundancy of systems. This phase is often referred to as 'stress testing.' Additionally, drills and training occur during this phase.

- Substantial Completion: Following the successful testing of all systems (stations, track, power, signals, train control, communications, etc.), the constructor will apply for Substantial Completion. This milestone signifies all major facets of the Project are completed and functioning properly for everyday use. Substantial Completion requires concurrence by the construction oversight agency (if not Metro), Metro's Program Management, Risk Management Safety, Engineering, Environmental Compliance and Sustainability, and key disciplines in the Operations Department. At this point, the day-to-day control of the Project is shifted from the constructor to Metro. The constructor will continue work on the Project, completing smaller punch-list items, not impacting the overall operating functionality.

- Training: Typically following Substantial Completion, this period allows for all personnel who will be assigned to provide and support revenue service to become familiar with the Project. Additional emergency drills are also conducted during this period.

- Pre-revenue Service: Following successful completion of training and determination of substation completion by the constructor, pre-revenue service begins and continues for a number of weeks, depending on complexity of the new service addition and the number of personnel who need functionality and detailed training. All pre-revenue operations simulate actual scheduled service, from open to close, each day, and include any variations to service levels during midday times. The intent of pre-revenue service is to provide familiarity for day-to-day Operations personnel, including Train Operators, supervisors, and control center personnel. Running service through at-grade crossings/street-run sections also provides more familiarity to affected neighborhoods.

3.16.1.5 Safety Testing Standards and Procedures

Discusses detail on all system Project requirements related to safety systems requirements, testing and drills, as required by regulatory agencies. Outlines constructor, agency, departmental roles and responsibilities necessary to be completed prior to revenue service.

3.16.1.6 Operating Rules and Procedures

Outlines new operating rules and procedures, if required, for the Project.

3.16.1.7 Training

Outlines training requirements for the Project for all departments; provides timelines to ensure completion prior to key pre-revenue operational dates and revenue service.

3.16.1.8 Emergency Operations / Service and Schedule Recovery Procedures

Outlines general plans for instances of service interruption, including numerous examples. Discusses the roles of various departments and first responders and follow-up support. Includes service alternatives and system recovery options for both short and long-term incidents.

3.16.1.9 Security Standards and Procedures

Provides detail on all system Project features and requirements related to passenger and systems security. Outlines constructor, Agency, departments' roles and responsibilities prior to and after initiation of revenue service.

3.16.1.10 Fare Collection Plan

Outlines the project features, issues and requirements necessary to complete timely collection of fares on a reoccurring schedule.

3.16.1.11 Business Management Plan

Operations delivers a strategic business plan that aligns with Metro's mission, vision, key program and project initiatives/priorities, and embraces Metro's service requirements and any plans outlined in the agency's Short Range and Long Range Transportation Plans. The plan will outline the approach to achieving the goals and objectives necessary to generate improvement and delivery of operations service, projects, and programs. This will represent existing and new projects for Operations. Each fiscal year, Operations will work with its key sections inclusive of Service Development, Bus/Rail Transportation Operations, Bus/Rail Maintenance Operations, Maintenance & Engineering, Vehicle Engineering & Acquisition, and Central Oversight & Analysis to plan for, monitor and ultimately deliver a set of programs and projects that address the County's and agency's needs for years to come.

Also, further coordination will take place with departments outside of Operations to carefully examine and analyze preliminary planning and design work, including operating costs, labor and any necessary resources that would need to be reassessed prior to testing and operating activities taking place in an effort to successfully support, operate and maintain any given project or program. These departments include: Risk, Safety and Asset Management; Systems Security and Law Enforcement; Countywide Planning; Program Management; Vendor/Contract Management; Communications; Information Technology Services; Labor/Employee Relations; Office of Management and Budget; and others. Operations will work to finalize all operational needs and priorities for integration into a sound business and budget plan to determine the optimal mix of all resource needs (labor and non-labor) and/or reallocation of funding to activate and operate approved projects and programs. Also, Metro adopts an agency budget in the spring of

each year to address Operating and Capital programs for the following fiscal year, which spans from July 1 through June 30th.

The budget cites planned revenues and expenditures for operating and capital programs. Additionally, operating statistics for the budget year are provided. All operations plans to deliver service, projects and programs within scope, schedule and budget will inform the budget process.

3.16.1.12 Operating and Maintenance Budgets

Outlines components necessary to aid in the annual budgeting process for preparation of the initial budgets. Includes all aspects of staffing, management, equipment, law enforcement, communications, facilities, fare collections, other support.

3.16.1.13 Staffing and Hiring Plan

Details the amount of staffing necessary to successfully operate and maintain the Project. Includes standards for hiring dates to allow for training periods. Includes staffing of support department functions.

3.16.1.14 Staff Support Functions

Discussion of non-operational department support requirements necessary for continued Project success.

3.16.2 Key Positions

3.16.2.1 **Chief Operations Officer (COO)** – Provides assistance to the Chief Executive Officer in executing the overall mission of Metro and provides executive direction to Transit Operations. The Chief Operations Officer provides counsel to the Chief Executive Officer on developing the implementation of regional long-range strategic and business plans, coordinates activities to assure peak performance and productivity, as well as conformance with established or mandated external regulations and policies effecting Metro Rail Operations. The Chief Operations Officer represents Metro before public agencies, the business community, labor unions and the public sector. This position reports to the Chief Executive Officer.

3.16.2.2 **Senior Executive Officer, Operations** – Is responsible for collaborating with the COO in directing the overall activities of Metro's transit service delivery. With the COO Officer, establishes goals, major priorities, and develops strategies and resolutions to major bus and rail transportation issues. The Sr. Executive Officer, Operations, develops and implements strategic business plans for Operations; prepares for next generation of leaders; works with outside agencies to create partnerships; and manages transit operations performance against goals and makes recommendations for improvement. This position also pursues funding applications for various programs, including capital and operating programs, maintains and updates long-range staffing plans, resource needs, and contingencies to support Metro projects. The Sr. Executive Officer, Operations reports to the COO.

3.16.2.3 **Executive Officer, Operations Administration** – Is responsible for providing executive direction to the COO for the management of the transit operations operating

and capital budgets, and finance and administration tasks in support of Metro-wide strategies and programs. The EO, Operations Admin provides direction and management to the business unit's administration & financial services group; advises on transit business related matters; formulates policy recommendations for Metro Board of Directors, attends Committee & Board meetings; and prepares monthly agendas/reports for committee meetings. This position works with outside agencies to create partnerships; serves as a member of inter-departmental and inter-agency committees; and develops the Operations business unit's annual budget; and closely monitors capital and operating budgets to ensure compliance with agency's goals and adherence to policies and procedures. This position also develops key performance indicator targets, Office of Inspector General and Audit investigations, provides input for long-range staffing plans, resource needs, and contingencies to support Metro projects; and oversees the management of the Contract Services/Purchased Transportation section. The EO Operations Administration reports to the COO.

3.16.2.4 **Senior Executive Officer, Rail Fleet Services (RFS)** – Is responsible for overseeing and directing all aspects of Metro rail vehicle maintenance operations including all rail maintenance divisions, rail maintenance instruction, and rail maintenance equipment, along with various major capital programs in support of rail fleet services. The Sr. Executive Officer, RFS coordinates activities with rail maintenance operations frontline staff to ensure peak performance and productivity, as well as conformance and compliance with established or mandated external regulations and policies effecting Metro operations such as California Public Utilities Commission (CPUC) inspections, rail maintenance division inspections, and various internal/external audits. This position develops plans and programs focusing on rail maintenance operation needs, training/instruction, safety, quality assurance, rail vehicle preventive maintenance programs and schedules, including rail maintenance capital/overhaul programs, production and equipment upgrades. In addition, this position develops and executes campaigns to improve service quality, reduce rail maintenance costs, increase employee productivity, reduce accidents and equipment failures, and increase revenue and ridership. The Sr. Executive Officer, RFS reports to the COO.

3.16.2.5 **Senior Executive Officer, Rail Operations** – Is responsible for overseeing and directing all aspects of Metro rail transportation operations including all rail transportation divisions, rail instruction, rail operations control and rail vehicle supervision. The Sr. Executive Officer, Rail Operations directs budgets, goals, and business plans within Rail Operations; and coordinates activities within rail operations frontline staff to ensure safety, peak performance and productivity, as well as conformance with established or mandated external regulations and policies. This position develops and implements strategic business plans; develops and executes programs to improve service quality, reduce costs, increase employee productivity, increase revenue and ridership, monitors operating performance, and directs efforts to achieve continual improvement in service quality. Sr. Executive Officer, Rail Operations reports to the COO.

3.16.2.6 **Senior Executive Officer, Vehicle Acquisition** – Is responsible for overseeing and directing all aspects of Metro vehicle engineering and acquisition activities, including vehicle technology, warranty, rail vehicle acquisition, rail vehicle engineering, and vehicle transit capital projects. The Sr. Executive Officer, Vehicle Acquisition

directs major vehicle transit capital projects including all aspects of technical support, schedules, budget, funding, grants management, staffing and agency reporting in support of the procurement of bus and rail vehicles for the agency. This position directs performance of consultants and contractors for successful project completion; manages and directs third-party coordination and activities related to project design and implementation; ensures all design and implementation meet operations and maintenance quality standards and expectations; and provides policy recommendations, technical assistance, and information to the Board of Directors, executive management, and departments involved in the design and management of vehicle acquisition capital programs. The Sr. Executive Officer, Vehicle Acquisition reports to the COO.

3.16.2.7 **Senior Executive Officer, Rail Maintenance and Engineering (RME)** – Is responsible for overseeing and directing all aspects of Metro maintenance & engineering for rail systems including track, traction power, signaling; rail communications; Supervisory Control and Date Acquisition (SCADA) operations; Transit Asset Management (TAM)/State of Good Repair (SGR) projects; rail strategic planning and bus and rail stations, shops and facilities maintenance, including elevators and escalators and Stops & Zones.. This position monitors engineering research, architectural and engineering design, whether by in-house or contract staff, in the areas of electronics, communications, train control, computer systems, civil, structural, mechanical or electrical engineering, including contract documentation review and other major engineering projects for Operations. In addition, the position directs operational and engineering technical support for rail design, construction, start-up, testing, and activation of systems, pre-revenue, revenue operations and directs activities to ensure safety, peak performance and productivity, as well as conformance and compliance with established or mandated external regulations and policies. Lastly, this position provides direction for the maintenance of all elevator and escalator service contracts focusing on maintenance needs and functionality. The Sr. Executive Officer, RME reports to the COO.

3.16.2.8 **Senior Executive Officer, Service Development, Scheduling & Analysis (SDSA) -** Is responsible for overseeing and directing all aspects of Metro's bus and rail service development & planning, scheduling, data collection and analysis including oversight of Metro's Regional Service Councils. The Sr. Executive Officer, SDSA provides direction and support to Metro's bus and rail transportation service development to ensure attainment of Metro and departmental goals and objectives within established policies and parameters; evaluates all areas of transit services schedules in accordance and compliance with policy direction and mandated regulations. This position oversees Metro's five Regional Service Councils; ensures coordination with Bus/Rail Operations and other Metro work units to support safe, effective customer service; makes recommendations and presentations to the Chief Operations Officer, Executive Management staff and Board of Directors on matters pertaining to Bus/Rail Operations regional service delivery. Moreover, this position develops and implements strategic business plans focusing on bus and rail transportation needs and executes programs to improve safety, service quality, reduce costs, increase employee productivity, and increase revenue and ridership. The Sr. Executive Offer, SDSA reports to the COO.

3.16.2.9 **Senior Executive Officer, Bus Transportation** – Is responsible for overseeing and directing all aspects of bus transportation operations including all bus transportation divisions, operations central instruction, bus vehicle operations and bus operations control. The Sr. Executive Officer, Bus Transportation coordinates activities with Transit Operations frontline staff to ensure safety, peak performance and productivity, as well as conformance with established or mandated external regulations and policies effecting Metro Operations is achieved. This position also coordinates with rail transportation and external agencies in the event that bus bridges are needed for emergencies, service disruptions, and to ensure that there is seamless coordination between bus and rail connections. This position also makes recommendations and presentations to the Chief Operations Officer, Executive Management staff and Board of Directors on matters pertaining to Bus Operations, strategic business plans, and programs to increase safety, improve service quality, reduce costs, increase employee productivity, and increase revenue and ridership. Additionally, this position ensures that bus operations is compliant with policy direction, California Highway Patrol inspections, division inspections, and various internal / external audits such as FTA, Triennial, etc. The Sr. Executive Officer, Bus Transportation reports to the COO.

3.16.3 Consultants

Metro Operations team members, project directors/managers, along with project control management will oversee consultants to implement and deliver a variety of operations projects. These consultants will provide a range of services to Operations, including but not limited to: engineering and technical resources to plan, design and execute projects and meet day-to-day engineering needs necessary for maintaining, renewing and improving Metro assets and systems. Also, Operations consultants will provide program control and oversight support resources necessary to facilitate the timely production and delivery of major transit projects to ensure that performance is consistent with all project delivery requirements. Operations consultants will enable Metro to supplement internal resources on an as-needed basis in situations where either Metro does not have sufficient, resources, or the expertise necessary to perform tasks associated with the procurement, planning design, engineering, programming, audit, inspection/reviews, program/project management, correction actions, integration and operational activities of a transit project.

Appendix 1: List of Acronyms and Abbreviations

AA	Alternatives Analysis
ACE	Advance Conceptual Engineering
ADA	Americans with Disabilities Act
ADR	Alternative Dispute Resolution
A&E	Architectural and Engineering
AERB	Architectural & Engineering Review Board
AFSCME	American Federation of State, County and Municipal Employees Union
ALARP	As Low As Reasonably Practicable
APE	Annual Program Evaluation
APTA	American Public Transportation Association
AWP	Annual Work Plan
B/B	Bike/Bus
BOE	Bureau of Engineering
BOM	Bill of Material
B/R	Bus/Rail
BOS	Bureau of Sanitation
BSL	Bureau of Street Lighting
BSS	Bureau of Street Services
BRT	Bus Rapid Transit
CA	Contract Administrator
CADD	Computer-Aided Drafting and Design
CAFR	Comprehensive Annual Financial Report
CAG	Corridor Advisory Group
Caltrans	California Department of Transportation
CBS	Cost Breakdown Structure
CCIP	Contractor Controlled Insurance Program
CCO	Chief Communication Officer

CCTV	Closed Circuit Television
CDRL	Contract Data Requirement List
CE	Categorical Exclusions
CEO	Chief Executive Officer
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulation
CHP	California Highway Patrol
CHSRA	California High Speed Rail Authority
CIO	Chief Information Officer
CIP	Capital Improvement Projects
CIV	Civil Rights Policy
CLC	Community Leadership Council
CM	Construction Management/Manager
CMAQ	Air Quality Improvement Program
CM/GC	Construction Manager/General Contractor
CMI	Contract Management Interface
CMP	Congestion Management Program
CMR	Construction Manager at Risk
CMSS	Construction Management Support Services
COG	Council of Government
COLA	City of Los Angeles
CONAD	Contract Administration
ConOps	Concept of Operation
COO	Chief Operations Officer
CPA	Certified Public Accountant
CPCC	California Public Contract Code
CPD	Countywide Planning and Development
CPUC	California Public Utilities Commission
CSM	Construction Safety Manager

CSSM	Construction Safety & Security Manual
CTC	California Transportation Commission
DB	Design Build
DBB	Design Bid Build
DBE	Disadvantaged Business Enterprise
DBFOM	Design/Build/Finance/Operate/Maintain
DBOM	Design/Build/Operate /Maintain
DBOM/F	DBOM/Finance
DCEO	Deputy Chief Executive Officer
DCS	Director of Construction Safety
DEO	Deputy Executive Officer
DEOD	Diversity and Economic Opportunity Department
DIR	Department of Industrial Relations
DOT	Department of Transportation
DVBE	Disabled Veteran Business Enterprise
DWP	Department of Water and Power
EAM	Enterprise Asset Management
ECS	Environmental Compliance and Sustainability
ED	Environmental Document
EEO	Equal Employment Opportunity
EIR	Environmental Impact Report
EIS	Environmental Impact Study
EO	Executive Officer
EPS	Enterprise Project Structure
ETAM	Enterprise Transit Asset Management
ETRA	Enhanced Threat & Risk Assessments
FACI	First Article Configuration Inspection
FASTLANE	Fostering Advancements in Shipping and Transportation for the Long-term Achievement of National Efficiencies
F&C	Financial and Compliance

FCP	Facilities Capital Projects
FE	Facilities Engineering
FEIS	Final Environmental Impact Study
FFGA	Full Funding Grant Agreement
FHA	Federal Highway Act
FHWA	Federal Highway Administration
FIS	Finance Information System
F/LM	First Last Mile
FLS	Fire Life Safety
FLSSC	Fire/Life Safety and Security Committee
FMEA	Failure Modes and Effects Analysis
FMP	Fleet Management Plan
FONSI	Finding of No Significant Impact
FRA	Federal Railroad Administration
FSP	Freeway Service Patrol
FTA	Federal Transit Administration
FTE	Full Time Equivalent
FY	Fiscal Year (Annual)
GHG	Greenhouse Gas
GO	General Order
GPR	Ground Penetrating Radar
HOT	High Occupancy Toll
HOV	High Occupancy Vehicle
HVAC	Heating, Ventilation and Air Conditioning
IAM	International Association of Machinist and Aerospace Workers
IDF	Intermediate Distribution Facility
IFB	Invitation for Bid
IGA	Intergovernmental Agreements
IPMO	Integrated Project Management Office

IT	Information Technology
KPI	Key Performance Indicator
LACMTA	Los Angeles County Metropolitan Transportation Authority
LACTIP	Los Angeles County Traffic Improvement Plan
LAPD	Los Angeles Police Department
LASD	Los Angeles Sheriff's Department
LOP	Life of Project
LOSSAN	Los Angeles – San Diego – San Luis Obispo Rail Corridor
LPA	Locally Preferred Alternative
LRTP	Long Range Transportation Plan
MAS	Management Audit Services
MATS	Metro Applicant Tracking System
MCA	Master Cooperative Agreement
MDF	Main Distribution Facility
MEP	Mechanical, Electrical and Plumbing
MPO	Metropolitan Planning Organization
MRSDCS	Metro Rail System Design Criteria and Standards
MSIP	Metro Sustainability Implementation Plan
NCR	Nonconformance Report
NEPA	National Environmental Policy Act
NTP	Notice to Proceed
OCEO	Office of CEO
OCR	Optical Character Recognition
OEI	Office of Extraordinary Innovation
OEM	Original Equipment Manufacturer
OHA	Operating Hazard Analysis
O&M	Operations and Maintenance
OMB	Office of Management and Budget
OMP	Operation and Maintenance Plan

P3	Public-Private-Partnership
PA	Project Approval
PAED	Project Approval/Environmental Document
PC	Program Control
PCCB	Program wide Change Control Board
PD	Preliminary Design
PDT	Project Development Team
PE	Preliminary Engineering
PHA	Preliminary Hazard Analysis
PID	Project Initiation Document
PM	Project Manager
PMA	Project Management Assistance
PMBOK	Project Management Body of Knowledge
PMI	Project Management Institute
PMIS	Project Management Information System
PMO	Project Management Office
PMP	Program/Project Management Plan
PR	Project Report
P&R	Park and Ride
PS&E	Plans, Specifications & Estimates
PSP	Program Support Plan
PSR	Project Study Report
QA	Quality Assurance
QC	Quality Control
QMP	Quality Management Program
QMPM	Quality Management Program Manual
RAMP	Real Estate Acquisition Management Plan
RE	Resident Engineer
RFC	Request for Change

RFI	Request for Information
RFM	Risk Financing Manager
RFP	Request for Proposal
RFS	Rail Fleet Services
RGM	Regional Grants Management
RME	Rail Maintenance and Engineering
ROD	Record of Decision
ROM	Rough Order of Magnitude
ROW	Right-Of-Way
RTPA	Regional Transportation Planning Agency
SAFE	Service Authority for Freeway Emergency
SBCN	System-wide Baseline Change Notice
SBE	Small Business Enterprise
SCADA	Supervisory Control and Date Acquisition
SCAG	Southern California Association Government
SCC	Standard Cost Category
SCP	Safety Certification Plan
SCRRA	Southern California Regional Rail Authority
SCVR	Safety Certification Verification Report
SDSA	Service Development, Scheduling and Analysis
SE	Systems Engineering
SEO	Senior Executive Officer
SGR	State of Good Repair
SHOPP	State Highway Operation and Protection Program
SHS	State Highway System
SLT	Senior Leadership Team
SOGR	State of Good Repairs
SOV	Single Occupant Vehicle
SOW	Statement of Work

SPP	Specific Permitting Plan
SQAM	Senior Quality Assurance Manager
SRTP	Short Range transportation Plan
SSCRT	Safety & Security Certification Review Team
SSMP	Safety and Security Management Plan
SSP	Source Selection Plan
STA	State Transit Assistance
STIP	State Transportation Improvement Program
STP	Surface Transportation Program
TAC	Technical Advisory Committee
TAM	Transit Asset Management
TAP	Transit Access Pass/Tunnel Advisory Panel
TBAC	Transportation Business Advisory Council
TCU	Transportation Communications Union
TDA	Transportation Development Act
TDI	Transportation Development and Implementation
TIFIA	Transportation Infrastructure Finance and Innovation Act
TIGER	Transportation Investment Generating Economic Recovery
TOC	Transit Oriented Communities
T&R	Traffic and Revenue
TVM	Ticket Vending Machine
UPS	Universal Power Supply
URA	Uniform Relocation Assistance
USPAP	Uniform Standards of Professional Appraisal Practice
V/CM	Vendor/Contract Management
VE	Value Engineering
WBS	Work Breakdown Structure
WTCP	Work Traffic Control Plan